

caaagagaaa	aggcgtgtag	atggatatgcc	tggcacacga	tctacacgcc	ccggagttat	60
tcgcttctga	gatcgtcgag	tacttcgtcg	tacttggtccc	gatctcttcc	accatatctt	120
cggtagattcc	cttcattttc	ctacgggtctt	ctggtagcga	ttcttggctt	cataatagcc	180
ttccaccacg	ctatccttac	tttgtcgggt	gtactgttga	tgtcttcaac	gaagcgagta	240
cgctttcacg	atcagcgaaa	taagcagcgg	tagccnaat	agcaaggccc	actacagacc	300
gagagaaaac	tttccttggtg	agctcataaa	aaatcctcct	tacttattaa	atgctttgaa	360
tcaattttgt	cagaaaacca	attcacncga	atatgaatcg	tttcgt		406

(2) INFORMATION FOR SEQ ID NO:311

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 664 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...664

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:311

agcagattat	gccatcacgg	cctctcactc	ggagggtttc	ggtctgaata	tctggaggct	60
actgcttgtg	gaaaaccgt	tgtagccact	gatttgcccc	attcagagaa	atctgcggca	120
caggctttca	ggacaacgaa	ttgttttttc	tgtaggaaac	caaaaagaat	tggaggattg	180
cataactaaa	agccttgta	tacgttcaac	cctcaaaaag	tctccgatat	caggcatcat	240
ttctcgcgga	aacaatgtct	gtacaatatc	agaactatta	tacggagcta	tcagtccact	300
aaaatgaatt	caatgaagag	tgcatgttcc	gattattact	gctcaatcgt	actttataaa	360
agcaaaccgg	atattattcg	ggatgtcatt	actccttttt	ctctgatacg	gtaactaaga	420
agaagcttat	cctcatagac	attctccgac	tgacagtctt	cgtgtcctcc	aagaagaaag	480
accggaggat	ttcagggtatt	tctttaataa	ccgcaatata	ggattcggat	cagctcacat	540
atcggtatta	gagaggcagc	tcgcttcaat	ccttcttata	attaattcta	atcctgatgt	600
gcagtttggc	cctgaagtgg	tgccgacatt	ggcttcaaca	tggaccgaga	atcctgatat	660
agga						664

(2) INFORMATION FOR SEQ ID NO:312

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 969 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...969

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:312

gggtaacgac	agcatttcttc	accggatcga	tcatttgggc	aatagcctgt	tgaatgcttc	60
cagaggaacc	tgaggagcaa	aagcattcac	cgtctgattt	ccacctcaat	acccgggata	120
tagccgccat	cggatgaagta	ggatggagatt	cattggcata	agcattgttc	ttacgcttgt	180
ctctttcggt	gtattgttct	cgtatcgctt	gagcacattc	gngccgtgca	cgatccgtat	240
tcgccttggt	gaataccgaa	ctgacggagg	ctttctatct	ctgccaccaa	tgcgtcatcg	300
ctttctccgc	ttcacctca	cgaaccgagg	caacaaaatt	gaagcgtcct	tagtctgggt	360
gatgtacatg	aagttagaga	agaaagctcc	tgactgagga	aaggagcggt	aggcttgtga	420
gtaatctcgg	acagacgctc	atcacggctg	tagtgatcac	ctgtttcata	tagtcttcca	480
caagtccgaa	atcgatcctc	gcatttcttg	aggagtgggg	tcgctcttga	agctgatggg	540
agctgcgtgg	tagtagcctc	agcatcggtg	gcaatggcta	cgataggcca	tcgttgcct	600
ctaccggcgt	atagatacgc	tctgctggat	tcacggggca	ggaacgtcct	tgaagagttc	660
tttgatcttg	ttctccacat	agtccaatcg	atatctccca	cgatcaccag	accttgcagg	720
tcgggacgat	accattctta	taatagttgc	gcagctcatc	atgcttgaag	ttgagcacga	780
cgctcatcaga	ccgatgggca	tgcgttctgc	atatttatta	cccggcatag	cctggcaagt	840
atagcctcga	acatacgaag	gttggcatcg	cgacgagcac	gcactcttcc	tggatcacac	900
cgcgtcctc	gtcgatctca	tgcccgtcga	ggtaatatgt	ttactccaat	catgcaggat	960
aagcaagcg						969

(2) INFORMATION FOR SEQ ID NO:313

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 613 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...613

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:313

tggttcgctg	ccccaaagtgc	ttgtacgata	gtcttcgcga	agaggatagg	cgcgtttccg	60
agtaccgctc	gatattctgt	ccgatgagga	cgatacggcg	gtacggaaga	agacccttc	120
aaaaacacgc	tggtcaggca	tcaggatgct	tcccctactt	cgccttgca	tacttcgata	180
tgaagaaagt	cttcactccc	tccgttcca	tatagatttg	ggcacctacc	acttcgccat	240
atacagaaga	acatcggcga	gcagccggaa	gaccgccatc	tgacgcgcaa	cctgacggct	300
tcggccgaat	acaggatttc	gccgaggagc	atagaccgga	agatggaagc	gtttgggtgcg	360
ggatttggac	tacttcgaga	ccggcgacaa	gcctatatca	cccaaaccac	tccgcactat	420
catatcgaga	aaggaaaagat	cggctgaggt	tcgtgccgga	agggcagctt	ctttggccgt	480
cggcggaggt	ggagcaaccc	gaacgggacg	aaagcaata	cgcccaagac	aaacggttcc	540
ggcagaagcc	ttcctgagcg	tacatgagct	gatgcccattg	atgtctatac	ttcctgctga	600
gagaaaagta	ttt					613

(2) INFORMATION FOR SEQ ID NO:314

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1630 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:314

gcatcagtag	tatgagcgaa	aggatttgat	ttcagtggtt	ttcaggttgt	agctccgtcg	60
ggaatcgaac	ccgaatctat	ggtttaggaa	accactatct	atccattgaa	ctacagagcc	120
gaaagaacaa	gaccgacctt	gacgggttgg	tctcttttta	tttcggggac	aaagataggg	180
aataaaaccaa	cttaatttgt	tccttttctt	tcttgagcaa	gcgttcggcc	gcttcagatg	240
ttgcttctgt	cgatagtatt	cctgactata	accggggaaa	tcaggcatgg	cactaaaccg	300
tatccatttg	tcttgaatcg	gccactctcc	tctttcttgc	gatgccatcc	atgtacttta	360
ccatcagata	ttccccaaga	cgcttccaac	ggcagttgct	ttctctgcct	cttcgttgct	420
gtaatttgct	aggaatgcta	cgctttggcc	ggatccagag	cgtatagctc	ttgtgcttgc	480
ttgtcgatag	cggaagtatg	cggtcacaa	ctccttcgag	ttcacgctgt	acagggcgat	540
atcggctatc	atctgatcat	agcggtgata	tgccatatta	gccaccatt	gtggatccag	600
aaagccgaag	tccaagaaaa	gtgcatcata	tcgccatacc	ctgacggaag	cactccggca	660
cacgcgttgt	ggaacaatag	atcggatcat	aacggccata	tcggcatcgt	ccacgccaaa	720
ccaattaaca	ccgccatggc	atcggggagc	caattacgca	actgggctac	gaaaacaaat	780
ccggttgctg	agtggcaatg	gcacgttcat	taacgtactc	cttgccatcc	actcgaagct	840
catcggacgc	caacggtagg	gtactttata	agggccggca	ccggatcggt	cgtcatacat	900
agggaagtac	cttcgtagtg	atcacgcata	aatcgcgaa	atcagcgaca	gagagcttgc	960
gatccggaac	aatatagaga	gcattttatc	cttgctctga	ttccgtataa	aagcttcata	1020
cttaccatt	gcgaattgaa	cttattgaag	aaagcccata	cacgagcttc	acaaccacaa	1080
gaccaccttc	ggtataaggg	ttatatgctt	cttggaagct	aaaatcctgt	ctgttccttg	1140
gaagaatccc	atctcacggg	caaatgaaac	gacatcggag	aatagagata	atctttactc	1200
ttgaaatcga	tctgctggat	gcgagttgat	tggcatgtgc	actaatagca	ttgtccggaa	1260
tgcgcacagc	tgccacacag	cacctttgag	ccccttacc	ttgccgatca	tctccagaat	1320
ccaacttcgt	tcttatcggc	aacactaaaa	ctttcgccac	tgctatggta	gcgtattcct	1380
ttaccagatt	ggttatgacg	tctatagcct	cacgagctgt	ctagaacgct	ggagagccac	1440
atagatcagg	ctgccatagt	ccatgatacc	tcactttcgg	ccaattcggg	acgtccgccc	1500
catgtcgtct	cggcaatagc	acttggtgtt	cgttcacatt	accgatgaca	ttgtaggtat	1560
gcgtatgtcg	ggaatgaatc	caagtgggtt	gttcgtgtcc	cattcgataa	ttgggcgatt	1620
gttccttcag						1630

(2) INFORMATION FOR SEQ ID NO:315

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 459 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...459

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:315

cactgttttt	ggcattgcgg	atgggatcat	ggatgtcgat	aggttcgtgc	agatattgta	60
gtcaccgcac	aggatcaagt	tagggcgact	cttgcggatt	cattgacata	agattggaag	120
tgctccagcc	aaaccatctt	gaaggccgac	gtcatcgcg	actcgtcccg	gatggatgat	180
aaacgcttac	gatagaagat	cgccgaaatc	ggcacggata	aaacgacctt	ccgcacgta	240
ttcttcatac	ccatgccata	ttctatatga	tcaggctgat	gctttgtgat	gataccacac	300
cgctatatcc	tttcttttga	gcccgaaaaa	aagatacgag	ccgtagccca	gtgcttcaaa	360
tccttcattt	ttcgaattgg	tcattctgca	tctagtttcc	tgcaggcaca	agcacatcag	420
gattctcttc	tcgaagccaa	cgatcagatc	ttttcttca			459

(2) INFORMATION FOR SEQ ID NO:316

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1400 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1400

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:316

ggcaactata	tgatcgattt	gttggttagct	aatgtttgta	agcaaaaatac	acccgccttc	60
cttatgaaat	agctcgtttg	gcagaagata	ttgcaggagt	ttgatggtaa	ccatgccttc	120
tcaacaagac	ttccgccatc	cggaaatggc	ccgatcgtaa	agaaatatct	tgcagggtgca	180
acaggcaaat	cgacagaaac	cgtatgcgtg	ttctgcgttt	gatagagaat	atcacgctgg	240
gaacactgcc	gtcggttatc	gaaccgagtc	tatgcacgga	gccggatctc	ctcagctcag	300
agaatcatga	tcgctcgtca	gggagatctt	gagggcaaga	aaagcttgca	cgggcgattg	360
ctcatatcga	cgaatcactc	gataagtaat	cgctctcctt	cacttatctg	tttgatgtat	420
ttagaagacg	gattataacg	caccgtgaaa	ccggatacaa	tgacagaaga	aatagtcgaa	480
ctcgtactgc	cgagcggatc	agtcgcgtac	tgcgcagtca	cggggggcgac	ttatctttac	540
tcaaatacaag	gataagaccg	tttttgtgcg	gttttccgga	gcatgccgtt	ctgtccggca	600
gcacatgaga	cagtagaaaa	aatcgttcaa	gccatgaacg	cgaatacttc	aaagatgaca	660
acatcgatgt	cattcttgaa	aatagtttag	cgatgatctg	ttagaacaag	ccaagaatat	720
tttgagaaaa	cccaatagct	tttatgaaag	acgtattagc	ggaatatgcc	tcccgaattg	780
tttcgccgaa	gaagccgtaa	aacatatcaa	aaatggagaa	cgggtagctt	tgtacatgct	840
gccggagttc	ctcagagttg	tgttgatgca	ctgggtacaac	agccgacctt	ttccagaatg	900

tcgaaattta	tcacatgctt	tgtctcggcg	aggaaaatat	atggcacctg	aaatggcccc	960
tcacttccga	cacataacca	ttttgtaggt	ggtaattctc	gtaaagcagt	tgaggaaaat	1020
agagccgact	cattccggta	ttcttttatg	aagtgccatc	aatgattcgc	aaagacatct	1080
tcacatagat	gtcgccatcg	ttcagctttc	aatgcctgat	gagaatgtta	ctgtagtttt	1140
ggagtatctt	gcgattatag	caaaccggca	gcagaagcgc	tcatttagtt	ataggggaaa	1200
tcaaccgtca	aatgccatat	gtacaggcga	caacttgatt	cacatatcga	agttggatta	1260
catcgtgatg	gcagctaccc	tatctattct	cttgcaaagc	ccaaaatcgg	agaagtagaa	1320
gaactatcgg	gcgtaattgt	gccgagctta	ttgaagatgg	tgccacactc	cactcgggtat	1380
cggcgcgatt	cctgatgcag					1400

(2) INFORMATION FOR SEQ ID NO:317

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 628 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...628

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:317

gtgaatagac	tcacgattgt	cctcggcata	agcatagcca	gagcaaaacg	agaaagctga	60
ccagtagatt	gacgccacaa	ctgtagcgat	aggccgactc	acccgtcccg	gatttttagc	120
cccgtagttg	aaacctacga	tcggctgata	ccctgagcca	caccgatgat	aatcatgaaa	180
aagagcatgg	catagcattg	ataatcccga	atgctccgat	ggccaagtgc	gtagcatctg	240
ctgtccgccg	taggatacga	aagaacgatt	catgatgata	ttgaccagac	tgccgtaagg	300
tgcatggcga	agggtgctac	ccctatagcc	gttatgccgc	cgacaccggc	agggacaggc	360
ggaaaagccga	gcggtggaaa	cgtacgatac	tgctttacgg	aaaaagtgcg	aaaggacgta	420
gaccgaacat	actatcatgg	aacgacagtc	gctatggcgg	ctccgcttat	ccccatcccc	480
aacggataga	gaagatgtag	tccagcacca	cgttcgtcat	agccccgatg	atcatcgtat	540
catggctttg	cgcggatagc	ccgaaagctc	tcatgatagc	attgtagcga	agcttcagag	600
ctgagaaaaat	attggcagga	ccacgtat				628

(2) INFORMATION FOR SEQ ID NO:318

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1372 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1372

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:318

tgcttcttcg	agacagtcgc	aatgagtcgc	atccacaccg	aaatcattgt	gaatatgagc	60
gtattcttcg	tgatgtcgtc	cacgctcgtt	cgttcgtgtc	gctggtagga	gtggcgaaaag	120
caccgttctc	gtcgcgatag	acaggcagcc	ttcgatatcc	aattcgccac	gtccgattcc	180
gacaaaaggt	tcgtctcata	tcccacgcgc	aatacaatgt	cggagcctac	cttatcacgg	240
tcgaaacccc	gatagagtac	cctgtacgaa	gagataaaaag	gttgccctatg	tccacaaaagc	300
attgatataa	taaagcccca	atccgcgtac	tacacgtcgg	gacactgctc	ggcagacggc	360
ctgtagcggg	taggatcctt	gccgggtacgt	tttagcagct	gcgtgtggct	gctatggcag	420
ggatttcttt	gatggccggg	agtcgcaagt	ctgtatcagc	cgatcaagcc	tctccgttca	480
tctcatctat	agagtggatg	gcgaccggcc	tgctgcaact	ttggccgtac	cactcctacc	540
gaaaagccgg	acaatgatgc	agaataggta	cgtcaaagct	gatcccgggc	atcgtctcct	600
tcgtatcgta	ttcgatctcc	aaatcaaaat	caatgtctcg	agaccttctt	catcctcgtc	660
gtcttctatc	gatgccggaa	caaattctct	cctcatccca	tgtaagactg	gtcaaatcaa	720
gagcttggcg	tactagctgt	ccggctcgtg	aagggtctcc	ttgctgagtt	ctttccacaa	780
gtatctttag	ctcttccagt	ccctgttgtg	ccacggcaga	aatgaaaact	acgggcaagc	840
ctgtcggcag	ctcctcccga	agcatctcgc	acagctcttt	cgcgatgagg	tcgcacttgg	900
ttatggccag	cactttgcgc	ttttgtgcca	atcttcgttg	tatgccacca	gctcccgact	960
gagtatctcg	tattccttgg	aatgttgtcc	gtatcggccg	gaatcatgaa	gaggagcaaa	1020
gcgttccttc	gatgtgccgc	aggaaacgca	gtcccagtc	tttccccgat	gaagcccctc	1080
gatgatgccc	gggatgtccg	ccattacaaa	ggatcgcttg	tctcgatggc	tacgataaccg	1140
agattagggt	ccagcgtagt	gaacggatag	ttggcgtctt	cggctttgca	gcagtgagca	1200
ctgatagcag	tgctgatttg	ccggcttggg	aaatccgacc	agaccgacat	cggccagcat	1260
cttgagctgc	atgacaccat	acgctcctgt	gccggctcgc	cgggctgagc	atatcggggg	1320
gccgattggg	agcggctctg	aagaacgtat	tgccgtgtcc	gcctcggcct	cc	1372

(2) INFORMATION FOR SEQ ID NO:319

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 480 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...480

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:319

ttgcagtgat	gggtccgagc	ggagctgtag	aagtaatttt	tgccaaagag	tggcagcagc	60
cgagaatcct	caacaagcag	cattggaaaa	ggaagaagat	atcgtcaggc	ttttgccaat	120
ccgtacaatg	cagcctctta	cggctacttg	atgatgtgat	cgagcctcgc	aatactcgtt	180
tccgcattat	tcgtgccttg	aacagcttcg	tacgaaaaag	caaactattc	cggctaagaa	240
acacgcaatg	tgctctttta	ataagaggag	tttagtgcat	cgacctgaa	tattgcaggt	300
ttagccatat	ccttctgact	ttgtttgtca	tagcctccgg	actctctttg	cccagcaggc	360

agcacagctt cgcttgaatg aagtgatgac ccgaatgtgc gngactatca ggacagctat
 ggcaatcata agccgtggat taaaatatac aatcctccan ccgctacggt ggatatcaaa
 480

420

(2) INFORMATION FOR SEQ ID NO:320

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 444 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...444

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:320

ctggaattgg	ttttactgag	gaaaataaga	attcttttga	tacatacaga	gtggcttcaa	60
aatgtcaaaa	ggaggtaaag	gcttcggtcg	atztatgtcc	taaaatactt	ttatcatgtc	120
tcaattgaaa	gtatcttcta	tgaagaggca	aatataaaca	acgtagtttt	acatttggtc	180
acgcagatga	gataatgaaa	atgagcaaat	tgtagatatt	gaatccgact	ctgacctgca	240
tacagtacag	ttttacatct	ttcttccatt	aagtcttttg	atttagataa	agggttgaag	300
ttattgccag	aaaactcgtg	gagcgtttac	ttgtattcct	tgctctggag	gggaatatac	360
tccaaagatt	acgattaaag	aagagaatgg	ctcaattcaa	tagtattgaa	taactatatt	420
ggagacaatt	ctgatattca	aaaa				444

(2) INFORMATION FOR SEQ ID NO:321

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 456 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...456

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:321

tgcaaaaata	tcctttaccg	gctaaaactc	agataaaatg	tgtttttcat	gcaaggatat	60
------------	------------	------------	------------	------------	------------	----

gcgccactga	cctgtcgaaa	agagcgtgac	aactactcaa	attgaacgta	agcataatca	120
ttcgggtgcg	tgccccgactg	atagactggt	atagatcaac	ttataatcat	ccaaaagatc	180
aggacgctcg	tgtgtgtaac	atcgggaaaa	ccaaagctaa	agcgcagttc	ggggcacaaat	240
ttgaaaaagg	caggtaaaaa	tcgcatccga	gaccgatctg	caccccgtaa	tcgtcgcttt	300
ggtataaatc	tccaacccct	tctttcgccc	cagctccata	gtcagtaagg	cccgcgcatg	360
aggatattgga	cgcataattg	gttcaagcgc	cgggaaccata	ttttcaataa	ttagcggaaa	420
ttccaaatat	ttggatccga	acggagaaaa	gaaggc			456

(2) INFORMATION FOR SEQ ID NO:322

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 474 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:322

ggcttgcggtg	tggatgagtt	cgggactgaa	ccacatacgg	ctctcttttt	cgtggacagt	60
gtgcgggtgtt	caaggaaatg	cagaaaggca	ggtattttctc	cttcaccctt	tgcaggaaat	120
ccgtgtcgctc	cctctctatc	ctccctattt	tcttacccaa	tagcgcgtct	cccctgcgtc	180
gatgatgacg	ggcaggggttc	gttggttgag	catagtacaa	acttggcaaa	gaacgaaatc	240
tcgtccctgtc	cttatccctc	gcctccacct	tgtaggaaag	ggtgggtgctg	aggtcttgag	300
ccgctcgctg	tcctccctgc	ggtcgagaag	cacctngtcc	acgggatgag	cagtttccca	360
gcctagtccg	agttgaactg	acttcgaaag	tctcgttggt	gttgaagggt	acattgctgc	420
ccaagagggc	tttgaggaaa	gttgagaaat	tgtgctnttg	cccgtgtttc	gctn	474

(2) INFORMATION FOR SEQ ID NO:323

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 476 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...476

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:323

ggctgcgaat agcttgtaaa tacgattgat ctcaacacct gcagctttta ctcattttaa	60
tactggacgg ggttttcata cttcttaa atgcattggtag tgataacctgt gtcaatcgga	120
ctgttttcaa atctgtggca ttcataatgg acgtgcagat acactgactg taaaatgacc	180
ggctttttct gtgctattgt cctgcttttc tttactgaca tagctatttg ggcaaaaact	240
tcacgttttt cttattaata aaatactggg ataaatctat atcaggaata cgagtgcagc	300
agatttcaat tgtaacgact cttttaccat cttgatcatg ttatgacctc tttgacatac	360
tggttggcag cgttaccttc caaatatagt tcatcaagtc tttcaagagt gcttttagtg	420
aaatttcgga caaaatgctt atgatgaatc tttttgtaga gttgcgattc taataa	476

(2) INFORMATION FOR SEQ ID NO:324

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1506 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:324

aaggatcggc agccggttcg acggtagctt actgtttggg natccggatt cgatccgatc	60
aagtaccatt tgcttttcga gcgttttctc aatccggacg tatctccatg cccgatatag	120
acgtcgactt cgatgatgac gggcgtgcga aatactccgc tgggtgacgg aaaaatacgg	180
caaggagaga gtggccacat catcacctac ggtacgatgg ccacaaagag ttctattaag	240
gatgtgctcg cgtacagagg ctgcccttac tcgaaagcaa tcgttttagcc aagccgacca	300
gacaaaattc ccggagagaa gaaagtcaat ctgaagaaag caacgaattt gttccagagc	360
tgaagcaagc atcgctaagc tccgataagg tatgcgcgat accctgaaat acgccccaat	420
gctggagggg aatgtgcgca aacaggtgtg catgcctgcg gtatcatcat tgggaaaacg	480
gatatcagcg tgtcgttccg gtcagtacgg ctcccgacaa agacacgaag gaggagctgt	540
ggtcacacaa tacgaaggct ctgtcatcga acagacggga ctgatcaaat ggacttcctc	600
gggctgaaaa cgctctcgat catcaaagaa gctttggcaa cataaagcgg cgccatggca	660
ttgacttgaa tatagacacg atcccttcga cgatcctctt acatataagc tatacagcga	720
tggacgtacc ataggacttt ccaattcgaa tccggtagga tgcaaaagta tcttagggag	780
ctacgccctc tgctttcgag gacttgatag cgatgaatgc tctctatcgt cccgtccgat	840
ggactatatc ctttctttta tcgcacgcaa gcatgggcgt gacctatcga ttacgacctg	900
cctgagatgg aagaatatct caaagaaact ttggtgtgac ggtgtatcag gagcaagtca	960
tgcttctgag tcgcaagctt ccggttttac ccgaggccag agcgatgagc ttcgtaaggc	1020
tatgggcaaa aactcatcga aaagatgaat gttctgaagg tgaagtttct cgagggggga	1080
ataagaatgg acatccggaa gaagttctgg aaaagatctg gacagacggg agaagttcgc	1140
cagctatgct ttcaacaaga gtcagtccac ctgctaagtt gggtagccta ccaaaggct	1200
tacctgaaag caaacttatc ctgctaatat atggcaggag cattgagccg aaacctgaat	1260
aacatcacgg aaataccaag ctcatggatg agtgcaagtc catgaagatc ggcgatttgg	1320
tacggatgtg aacgagtcgg aaatgaaatt ctcagtaa atgccaatgggg atttcgggtc	1380
ggctctcagc ctgtaaaagg tgtaggatcg ggagccgtgg acagatcatt gccgaacgcg	1440
aagccaacgg gctatataag gacatcttcg ctttgtggag cggatcaatc tctctgcctg	1500
caatcg	1506

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 588 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...588
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:326

```

ggcgtaaaaa tcgttataga accacttacc acttcaatga caatacggaa aggcattccc 60
cctgatacga tcatatacgg tggaacatgg catggctttt ttgacctctc tgcggctatg 120
gggggagagg ctgaaacccg acaatgggtgc gtagcgggct gatgcatacc gatcatatac 180
attatacggg ggggtggtata cccgtcatgg aggactgggtg gccgatgcct tactcggctc 240
tattgccgtg gcaaaatgga taggagcgac cagtccaaac tctaaaataa aagaagtcca 300
agatcgtgca ctttttcgat tcgatggata tatcccgccct gtggatatac tacagtatga 360
tgcttctgcc cccatgatatt tttcgagtgg gagttcttca tcctctttct tttgttcctt 420
ccgctataca tcctgctacg cggcaaaccg gactgcgtat tgtatacgta tctctctttt 480
ctctttatatt tactataaga gcagcgggtct tttcgtcctg cttcttttgg ctgctgctag 540
agcgacttcc tcacggtcgc gctttttgtc ccgtcagcag atccaagt 588

```

(2) INFORMATION FOR SEQ ID NO:327

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1014 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1014
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:327

```

gcgctctcga cggttcttcg ctgtgatcga gagcaccgag aggcgggtcac gacactctcg 60
atggcccgtc caatggctcg cacagtgtct atcgccctcg gaagataacg agtttctgct 120
ctggattacg ctccagactg agcagacagg tagcagctgt cgcttaaaat cgtctagttt 180
gggatacgtc gagtagtgct ccactgctca tctagctggt cgatgagggc tagatcctga 240
cggagagatc aatgtattct ggagcaaaat cctcacgtcg atactctcta tttccccttt 300
ctcattcgat ccagaggagt tgagcttggt gatctttttg cgtgatcctc ggcacactct 360

```

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 588 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:326

ggcgtaaaaa	tcgttataga	accacttacc	acttcaatga	caatacggaa	aggcatccccg	60
cctgatacga	tcatatacgg	tggaacatgg	catggcctttt	ttgacctctc	tgcggctatg	120
gggggagagg	ctgaaacccg	acaatggtgc	gtagcgggct	gatgcatacc	gatcatatac	180
attatacggg	gggttggtata	cccgtcatgg	aggactgggtg	gccgatgcct	tactcggctc	240
tattgccgtg	gcaaaatgga	taggagcgac	cagtccaaac	tctaaaataa	aagaagtcca	300
agatcgtgca	ctttttcgat	tcgatggata	tatccccgct	gtggatatat	tacagtatga	360
tgcttctgcc	cccatgattt	tttcgagtgg	gagttcttca	tcctctttct	tttgttcctt	420
ccgctataca	tcctgctacg	cggcaaaccg	gactgcgtat	tgtatacgta	tctctctttt	480
ctctttatatt	tactataaga	gcagcgggtc	tttcgtcctg	cttcttttgg	ctgctgctag	540
agcgacttcc	tcatcggtcg	gctttttgtc	ccgtcagcag	atccaagt		588

(2) INFORMATION FOR SEQ ID NO:327

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1014 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1014

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:327

gcgctctcga	cggttcttcg	ctgtgatcga	gagcaccgag	aggcggtcac	gacactctcg	60
atggccccgt	caatggctcg	cacagtgtct	atcgccctcg	gaagataacg	agtttctgct	120
ctggattacg	ctccagactg	agcagacagg	tagcagctgt	cgcttaaaat	cgtctagttt	180
gggatcgtcg	gagtagtgct	ccactgctca	tctagctggg	cgatgagggc	tagatcctga	240
cggagagatc	aatgtattct	ggagcaaagt	cctcacgtcg	atactctcta	tttccccctt	300
ctcattcgat	ccagaggagt	tgagcttggt	gatctttttg	cgtgatcctc	ggcacactct	360

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...408

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:329

ggtcgaagct	cgtagccact	gctacatgct	tggcctgatt	caaatcgcta	acggcacttc	60
ttccggaata	accaacacag	gtaccttgct	cgaatctata	cttcggctgc	aacgcttccg	120
atcagatccg	aatccttgcg	cgatttgctc	gcgtcccat	cacgatcatt	acgggtctgt	180
gtcgcttgca	gtaactagga	ttacatcttc	cggagcaccg	tccaaaagga	cagaggagaa	240
agatattcgg	gaagttcctc	tcgcgttatc	ctttcacgca	gctctttctt	gagctgttca	300
tcagacgttg	tacacgctgg	tattctttgc	gcaggctgac	ttcttgctga	gctggaacac	360
aagccgtatc	gcccaccgta	agaagggtgtg	gaaaaaatgg	actgatata		408

(2) INFORMATION FOR SEQ ID NO:330

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 507 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:330

atattggatg	tgcccgtgaa	agatgagaaa	gctgcctgct	ggcatgtctt	tccatcatca	60
cggacatgta	tcagcccaat	ccacagcgaa	tgaaggacgg	atctccatcc	ccaaaagcaa	120
cggttatgag	tcgctccacg	ttacgggatg	ggaccgcaga	atcggtgggt	ggaggtgcag	180
attcgctccc	gtcgcaggac	gaggtggccg	aaagaggatt	ggctgctcac	tggaagtaca	240
aaggttcaag	agcgagagcg	gattggatga	gttcctcact	tccgtacgcg	agaccttgag	300
gcacgcgatc	actcctcgga	cgattcggcg	gagacgggtga	aaacttcaag	atgaacctct	360
tcaccgatga	gatctatgct	ttcactccca	cggagaactg	atcaagttgc	ctcagggagc	420
ccagtgtgct	ggacttttgc	ttttgccccat	ccattngcgc	atcggctgtc	aggccgtcgg	480
agcttaatgt	aatggaaaga	atgtgcc				507

(2) INFORMATION FOR SEQ ID NO:331

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 966 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...408

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:329

ggtcgaagct	cgtagccact	gctacatgct	tggcctgatt	caaatcgcta	acggcacttc	60
ttccggaata	accaacacag	gtaccttgct	cgaatctata	cttcggctgc	aacgcttcg	120
atcagatccg	aatccttgcg	cgatttgctc	gcgtcccat	cacgatcatt	acgggtctgt	180
gtcgcttgca	gtaactagga	ttacatcttc	cggagcaccg	tccaaaagga	cagaggagaa	240
agatattcgg	gaagttcctc	tcgcgttata	ctttcacgca	gctctttctt	gagctgttca	300
tcagacgttg	tacacgctgg	tattctttgc	gcaggctgac	ttcttgctga	gctggaacac	360
aagccgtatc	gcccaccgta	agaagggtgtg	gaaaaaatgg	actgatat		408

(2) INFORMATION FOR SEQ ID NO:330

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 507 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:330

atattggatg	tgcccgtgaa	agatgagaaa	gctgcctgct	ggcatgtctt	tccatcatca	60
cggacatgta	tcagcccaat	ccacagcgaa	tgaaggacgg	atctccatcc	ccaaaagcaa	120
cggttatgag	tcgctccacg	ttacggtatg	ggaccgcaga	atcggtgggt	ggagggtgag	180
attcgctccc	gtcgcaggac	gagggtggccg	aaagaggatt	ggctgctcac	tggaaagtaca	240
aaggttcaag	agcgagagcg	gattggatga	gttcctcact	tccgtacgcg	agaccttgag	300
gcacgcgata	actcctcgga	cgattcggcg	gagacggtga	aaacttcaag	atgaacctct	360
tcaccgatga	gatctatgct	ttcactccca	cggagaactg	atcaagttgc	ctcagggagc	420
ccagtgtgct	ggacttttgc	ttttgcccac	ccattngcgc	atcggtgtgc	aggccgtcgg	480
agcttaaatg	aatggaaaga	atgtgcc				507

(2) INFORMATION FOR SEQ ID NO:331

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 966 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(2) INFORMATION FOR SEQ ID NO:333

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2375 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2375

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:333

tgctcgcaaa	caaaaccaac	tctattcgac	actggagcag	aaaggattca	ccgccccctcc	60
actacgatgt	ggacttatga	cgatcatatc	cgcgacgaat	gaacaaagcc	atgagcctac	120
tgcgcgaaaa	agactacgac	tccttcctgc	agcatacaaa	gagatggcta	tcgttctgcg	180
tgacctgatg	gaaaaaaaga	gcttatcctt	tatccaacct	ctctgaagct	catttccgac	240
aaagattcga	agaaatgaaa	catggcgatc	gggaaatagg	cttcttcctt	atcgcatgcc	300
ggaattagat	gcaccggcca	agcaatcaaa	agaagcccac	ggcaatcatt	tatggcgaaa	360
ctggggagcct	tacttgccaa	acatggtatg	ggacaggcgg	acaagacgac	aaggcgatac	420
tggatgtagc	cgaaggaaag	cgactttgga	gcagatcaat	ctgcttttcc	gtcatctccc	480
tgtggatatt	cgttcgtgga	cgaaaacgag	ctggtttggt	tctatacgga	cacaaagcaa	540
gagtattccc	cagaagcaag	gggggtgatc	gccgagaagt	acgcaactcc	atccgcccac	600
gagcgttcat	atagtagagg	agataatcga	taagttcgac	gtggcgaaca	ggatcgcgca	660
gaattctgga	tcaataagcc	cggagtttca	tctacattgt	ctatgtggcc	atcagagacg	720
ccgacggggcg	tttcccgggtg	tgatggaaat	gatgcaagac	tgcacacgga	tccgtagtct	780
tgaagctcgc	gtacacttct	tacttgggac	gaagagcaaa	gtccggcaca	aggtcgaaag	840
aaagcgaatc	cgatactgcc	ggagaagacg	gcattcggcc	ggcacgaagc	tgaagagtct	900
cttgccagcgg	tatccgcaac	tgatggatga	ttgccaacga	tcagttccaa	gttcaccctc	960
ccttcgttctc	cgatggccaa	gtaattcttc	ctgttgccac	cattaaaatg	atgagcgaac	1020
gcgcgcgacat	ccgtcgggata	tgctcatcgg	caaactggaa	tcgctcatcg	cttcgtacat	1080
aaaccggatc	gatcgggaaga	gaaatagcat	gaagaaggag	gtgtgtcata	atcatggcgc	1140
acctccttgc	attaatatgg	gacggtcggg	tacaccctat	tccgagactc	ctaaggagtc	1200
cctaccgaga	cccctaagga	gtctcaccaa	gacccctaag	gagtctccac	cgagatccct	1260
aaggagtccc	taccagaccc	ctaaggggtc	ccaacagaga	ctccttaggg	gttcctcaat	1320
gcttacttca	ggaggggttc	gtgcgggtctt	ataatccatt	cgaatggaga	cacggggagca	1380
gtgaccggcg	aaagggaagcc	gaagcttagc	gaatcttacc	gcgaacagat	tgatgatgcg	1440
gccggcacta	cgtgcatcgt	gctcggagtg	gtcaccatga	cgatggttgc	accttcgcga	1500
ttgagacctc	tgagcagttc	atgacatcgg	ctccgttttt	ggagtcgagg	ttacccgtgg	1560
gttcacgcgc	aggatgagct	tcggattggc	caccacggcn	cgggcgatag	ccacgcgtgc	1620
tgttgtcctc	cggagagctg	attggggaa	tggccggccc	ggtggcgatg	ctcatcttgc	1680
gcagtgccctc	ctccactcgc	tctttccgct	cggagccttc	acaccagat	agacgagcgg	1740
caactccacg	ttctcgctta	ccgtatctct	tcgatgaggt	tgaagctctg	gaatacgaag	1800
ccgatattgc	cctacggacg	gcagtcctgt	ctttttcccc	gaggttgccc	acttctgccc	1860
cacgagcttg	tagataccgg	aagtgggatt	gtcgagaagg	ccgaggatat	tagcagagtg	1920
gacttaccgc	atcccgaagg	ccccattatg	gcgataaatt	gcctttgtcc	actttgagcg	1980
atacgccatc	gagggctacc	gtctctatct	ttctgttctg	aaaaccttgg	tgaggttgct	2040
gatttcaatc	attgttttct	tgtttttatg	aggtgaaagg	aagagcgaca	agccggacaa	2100
tgcttggtta	tgaatccgcc	gtttgccgga	ttgtcgccgt	atttattcgt	atcggtattca	2160
ttgacagggg	tgcggcgagc	tatgcgccgg	aggttgatga	caacgccaat	gcaataatca	2220

(2) INFORMATION FOR SEQ ID NO:333

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2375 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2375

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:333

tgctcgcaaa	caaaaccaac	tctattcgac	actggagcag	aaaggattca	ccgccccctcc	60
actacgatgt	ggacttatga	cgatcatatc	cgcgacgaat	gaacaaagcc	atgagcctac	120
tgcgcgaaaa	agactacgac	tccttcctgc	agcatacaaa	gagatggcta	tcgttctgcg	180
tgacctgatg	gaaaaaaaga	gcttatcctt	tatccaacct	ctctgaagct	catttccgac	240
aaagattcga	agaaatgaaa	catggcgatc	gggaaatagg	cttcttcctt	atcgcatgcc	300
ggaattagat	gcaccggcca	agcaatcaaa	agaagcccac	ggcaatcatt	tatggcgaaa	360
ctggggagcct	tacttgccaa	acatgggtatg	ggacaggcg	acaagacgac	aaggcgatac	420
tggatgtagc	cgaaggaaaag	cgactttgga	gcagatcaat	ctgcttttcc	gtcatctccc	480
tgtggatatt	cgttcgtgga	cgaaaacgag	ctggtttggt	tctatacgga	cacaaagcaa	540
gagtattccc	cagaagcaag	gggtgatcgc	gccgagaagt	acgcaactcc	atccgccccaa	600
gagcgttcac	atagtagagg	agataatcga	taagttcgac	gtggcgaaca	ggatcgcgca	660
gaattctgga	tcaataagcc	cggagtttca	tctacattgt	ctatgtggcc	atcagagacg	720
ccgacgggcg	tttcccgggt	tgatggaaat	gatgcaagac	tgcacacgga	tcgtagtctt	780
tgaagctcgc	gtacacttct	tacttgggac	gaagagcaaa	gtccggcaca	aggtcgaaaag	840
aaagcgaatc	cgatactgcc	ggagaagacg	gcattcggcc	ggcacgaagc	tgaagagtct	900
cttgacgcgg	tatccgcgaac	tgatggatga	ttgccaacga	tcagtcccaa	gttcaccctc	960
cttcgttctc	cgatggccaa	gtaattcttc	ctgttgccac	cattaaaatg	atgagcgaac	1020
gcgccgacat	ccgtcggata	tgctcatcgc	caaactggaa	tcgctcatcg	cttcgtacat	1080
aaaccggatc	gatcgggaaga	gaaatagcat	gaagaaggag	gtgtgtcata	atcatggcgc	1140
acctccttgc	attaatatgg	gacggtcggg	tacaccctat	tcgagactc	ctaaggagtc	1200
cctaccgaga	cccctaagga	gtctcaccaa	gacccctaag	gagtctccac	cgagatccct	1260
aaggagtccc	taccagacct	ctaaggggtc	ccaacagaga	ctccttaggg	gttcctcaat	1320
gcttacttca	ggaggggttc	gtgcggtctt	ataatccatt	cgaatggaga	cacggggagca	1380
gtgaccggcg	aaaggaagcc	gaagcttagc	gaatcttacc	gcgaacagat	tgatgatgcg	1440
gccggcacta	cgtgcatcgt	gctcggagtg	gtcaccatga	cgatggttgc	accttcgcga	1500
ttgagacctc	tgagcagttc	atgacatcgg	ctccgttttt	ggagtcgagg	ttaccctgtg	1560
gttcacgcgc	aggatgagct	tcggattggc	caccacggcn	cgggcgatag	ccacgcgtgc	1620
tgttgtcctc	cggagagctg	attgggggaag	tggccggccc	ggtggcgatg	ctcatcttgc	1680
gcagtgcctc	ctccactcgc	tctttccgct	cggagccttc	acaccagat	agacgagcgg	1740
caactccacg	ttctcgctta	ccgtatctct	tcgatgaggt	tgaagctctg	gaatacgaag	1800
ccgatattgc	cctacggacg	gcagtcctgt	ctttttcccg	gaggttgccc	acttctgccc	1860
cacgagcttg	tagataccgg	aagtgggatt	gtcgagaagg	ccgaggatat	tagcagagtg	1920
gacttaccgc	atcccgaagg	ccccattatg	gcgataaatt	gcctttgtcc	actttgagcg	1980
atagccatc	gagggctacc	gtctctattc	ttctgttctg	aaaaccttgg	tgaggttgct	2040
gatttcaatc	attgttttct	tgtttttatg	aggtgaaagg	aagagcgaca	agccggacaa	2100
tgccctggcta	tgaatccgcc	gtttgcccga	ttgtcgccgt	atattatcgt	atcggattca	2160
ttgacagggt	tgcggcgagc	tatgcgccgg	aggttgatga	caacgccaat	gcaataatca	2220

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...826

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:335

actgcactga	aagactcgcc	atacagatct	cgtccccgatt	ctttggggcga	tacaattttcc	60
tgttcatgga	gcacagctc	atcgtagtag	tcgatcaagc	ctcggccgac	gcacctccac	120
ccgtatatgg	ggacatctgc	aaagggtgtcc	ggcagcatcc	gacaggaagt	agtagccatg	180
cgtactgtat	gtattcccgt	atgctccatg	gtgggttttg	ccggattgta	gaaccatgtc	240
accggcccac	ggcataagaa	atacagcgca	tttgccctga	cggagtaccg	gtacggaggc	300
aaatcgtctg	tcgtgatccg	gctcagatct	tcgggaagca	ccctccacca	taaccgaaca	360
cacctacctt	ggacggatcg	gagaagccat	tgcacggagc	tgttcgtccg	taaggcgata	420
cactccactt	gcacgacac	gatcttgacc	caatgtcccg	aagccattag	cgaacggtcg	480
gccgtcttcc	catagctcgt	tgcgctttcg	caggcaaagc	aagggaagc	aagagagaag	540
gaatgcgact	attggaagta	ttcgtttcat	ctgagaaata	gcttatttat	ggatatgtcg	600
agcagttttt	gctcttcgag	ataggcttcg	aggtgctccc	gatagcaatg	gggcctaccc	660
ctgccggagt	ccctgtaaag	ataagacccc	catacgaagt	gtgaagaaac	gactggcata	720
agcgatcaaa	cgatcacgga	aaagagcata	tcccgtgtat	tgccctgctg	caccgtgcgt	780
nccgctatat	ccaatcgcag	gccaatttcc	tgcacaccgt	gcccgg		826

(2) INFORMATION FOR SEQ ID NO:336

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 922 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...922

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:336

atatcatccc	gatacgcaac	ttatggtgaa	tgcggaacgg	aattgattcg	acacactcca	60
ccatattagg	atcttatccc	aaaacgaaaa	agcctccgct	ctccctaaca	aggtgagtcg	120
gaggcttttt	agtatccgtt	agctaagctt	acttcagcgt	accttgctgt	gcttgttcga	180
tcattcttggc	attcgggaaga	tataaacctc	cacacggcgg	ttggccgaac	gtccggcaac	240

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...826

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:335

actgcactga	aagactcgcc	atacagatct	cgccccgatt	ctttgggcga	tacaatttcc	60
tgttcattga	gcatcagctc	atcgtagtag	tcgatcaagc	ctcggccgac	gcacctccac	120
ccgtatattg	ggacatctgc	aaagggtgtc	ggcagcatcc	gacaggaagt	agtagccatg	180
cgtactgtat	gtattcccgt	atgctccatg	gtggtttttg	ccggattgta	gaaccatgtc	240
accggcccac	ggcataagaa	atacagcgca	tttgccctga	cggagtaccg	gtacggaggc	300
aaatcgtctg	tcgtgatccg	gctcagatct	tcgggaagca	ccctccacca	taaccgaaca	360
cacctacctt	ggacggatcg	gagaagccat	tgcacggagc	tgttcgtccg	taaggcgata	420
cactccactt	gcatcgacac	gatcttgacc	caatgtcccc	aagccattag	cgaacggtcg	480
gccgtcttcc	catagctcgt	tgcgcttttc	caggcaaagc	aagggcaagg	aagagagaag	540
gaatgcgact	attggaagta	ttcgtttcat	ctgagaaaata	gcttatttat	ggatatgtcg	600
agcagttttt	gctcttcgag	ataggcttcg	aggtgctccc	gatagcaatg	gggcctaccc	660
ctgccggagt	ccctgtaaa	ataagacccc	catacgaagt	gtgaagaaac	gactggcata	720
agcgatcaaa	cgatcacgga	aaagagcata	tcccgtgtat	tgccctgctg	caccgtgcgt	780
nccgctatat	ccaatcgcag	gcccaattcc	tgcacaccgt	gccccgg		826

(2) INFORMATION FOR SEQ ID NO:336

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 922 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...922

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:336

atatcatccc	gatacgcaac	ttatggtgaa	tgcggaacgg	aattgattcg	acacactcca	60
ccatattagg	atcttatccc	aaaacgaaaa	agcctccgct	ctccctaaca	aggtgagtcg	120
gaggcttttt	agtatccgtt	agctaagctt	acttcagcgt	accttgctgt	gcttgttcga	180
tcattcttggc	attcggaaga	tataaacctc	cacacggcgg	ttggccgaac	gtccggcaac	240

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 749 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...749

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:338

ggctcagtcc	ggacaggaga	aggccaaaga	gggaggggct	ttcgatcagc	cattgtcaaa	60
gggcgaaagg	ccatccacct	gcacagtatt	cgtaccaacc	ggagcgtaag	caaggttggc	120
agagcgatcc	caaagccgta	gctttccgaa	caaaagagaa	tacaaccgct	ttctgcacaa	180
tgcttgatg	ctcgtggcaa	atcgcagttc	tataatgccg	atttcctgca	ggcgcaggct	240
acattttcta	tatcgcacgc	ttatacagcg	acgaaccgat	aatccgcgat	gaagccgtct	300
ttggcaggta	cgctgctaca	gtgagatggg	gtggctgcat	gaaggagcg	tttgctcgag	360
cgcatcccta	aagatcttcc	gcatgtcgat	cgagagggtt	gtattctttg	gcagtggcag	420
agcgttcgat	cctgtcgggt	gcaagcgcgc	ggccatacct	tatctccaac	aggcagcaag	480
acaagagaaa	acaagcgaca	acgcgctcgt	atgtattatc	tgctcggaca	gcttttacag	540
aaaacaatcg	gccggaggag	gctcgcaagg	cctattccaa	agtgttgagg	cttctccgcc	600
tttcgctttg	gactttgccg	cacggatcag	gaagatgagc	tgagggtga	acggaatccc	660
cgtacagtag	cccgtcgcg	tggaacgatg	gccaacaaaa	ggcaagttcc	aaaggatgta	720
ttgggatcag	atctttatgc	aagcaggca				749

(2) INFORMATION FOR SEQ ID NO:339

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 700 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...700

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:339

gggcagatag	tcgttggacg	taccctcgcc	gcgtatggca	gctatgggcg	gaggtaatcg	60
cccaaagcat	tttccagttt	caggcctccg	catttgccag	aaagatcaca	gccttggggg	120
gtatagccca	gagcaagtcc	atgatggagc	cgcatgggca	ctacccatgc	cgaagtgtat	180

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 749 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...749

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:338

ggctcagtcc	ggacaggaga	aggccaaaga	gggaggggct	ttcgatcagc	cattgtcaaa	60
gggcgaaagg	ccatccacct	gcacagtatt	cgtaccaacc	ggagcgtaag	caaggttggc	120
agagcgatcc	caaagccgta	gctttccgaa	caaaagagaa	tacaaccgct	ttctgcacaa	180
tgccctggatg	ctcgtggcaa	atcgagttc	tataatgccg	atttcctgca	ggcgcaggct	240
acatttctta	tatcgcacgc	ttatacagcg	acgaaccgat	aatccgcat	gaagccgtct	300
ttggcaggta	cgctgctaca	gtgagatggg	gtggctgcat	gaagggagcg	tttgctcgag	360
cgcattcccta	aagatcttcc	gcatgtcgat	cgagaggggt	gtattctttg	gcagtggcag	420
agcgttcgat	cctgtcgggt	gcaagcgcgc	ggccatacct	tatctccaac	aggcagcaag	480
acaagagaaa	acaagcgaca	acgcgctcgt	atgtattatc	tgctcggaca	gcttttacag	540
aaaacaatcg	gccggaggag	gctcgcgaagg	cctattccaa	agtgttgccg	cttctccgcc	600
tttcgctttg	gactttgccg	cacggatcag	gaagatgagc	tggaggggtga	acggaatccc	660
cgtacagtag	cccgcctcgt	tggaacgatg	gccaacaaaa	ggcaagttcc	aaaggatgta	720
ttgggatcag	atcttttatgc	aagcaggca				749

(2) INFORMATION FOR SEQ ID NO:339

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 700 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...700

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:339

gggcagatag	tcgttggacg	taccctcgcc	gcgtatggca	gctatgggcg	gaggtaatcg	60
cccaaagcat	tttccagttt	caggcctccg	catttgccag	aaagatcaca	gccttggggg	120
gtatagccca	gagcaagtcc	atgatggagc	cgcattggca	ctaccatgc	cgaagtgtat	180

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...566
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:341

cgtgtctttc	cattcagata	aaatcaaaga	ggcgaaagag	gatttggctg	cttcgagaaa	60
cgagtggaac	gggatgcaga	gggacttcca	atcaacaact	cacaattaag	ggtgtagaag	120
gaagtacgga	catcaagggt	attgctgtcg	cttgcaggag	atcgaggaga	aagcacgcac	180
caagggtgaa	tacaataaat	cggtgagatt	tatggctttt	ccatcatggt	caagacggaa	240
aactctcaaa	gagttgttcg	actgctcctc	caaccgcttt	tcgtgaaagg	gcanagagca	300
tctactatac	ctacaataac	gggaagttgg	cttctgatcc	caacttgctt	gtcagaactt	360
tatcaatgct	ctcgagcgta	ttccaaaggt	gatgaatcac	accgagaaa	ataaggaaaa	420
ggtttctgca	aacaaggagg	ttatatgacc	attgcgggtg	ggtcgtggaa	gaaagaggac	480
gagcttcgct	tctcaaagga	caggcagccc	gaactgggat	agaaaaattg	cactcacgcc	540
gcacctcccc	gaggaagaga	aagaaa				566

(2) INFORMATION FOR SEQ ID NO:342

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1212 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1212
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:342

tcagaagaga	attttatcta	tctctatttg	caaaaagaaa	agccaacatt	atagaagaag	60
aaaatttgat	attttggact	aaaggatttg	ttgcaggcta	aataaagact	ttataagtgc	120
atctcatatc	ctaattgccat	atttagacat	gcgttgcgta	atattgctga	aatcaagaaa	180
ggaaacataa	ctacttagag	aaaaaacgac	aagaggctcc	ttcttttaggt	gtaattttcc	240
ctatgttcaa	ggtgtaattg	aagaagaaat	actgtatgaa	atagaatcct	ttctaatacat	300
gggatagatg	tcaatttttag	gaataattta	tctcatggac	ttcaaccctt	tttgaaattg	360
aaaaatatgg	gatttatattg	tggtggatat	gctaaaacta	tattttgaag	aaaagaatat	420
gataaaaatc	gctccctaaa	ttataaaaaga	gataaagaat	tactagcctt	acggcctctg	480
cgaggctttt	aaaaccagat	gaaagtgaat	aactttgcat	tttggcatca	aaattcttgt	540

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:341

cgtgtctttc	cattcagata	aaatcaaaga	ggcgaaagag	gatttggctg	cttcgagaaa	60
cgagtggAAC	gggatgcaga	gggacttcca	atcaacaact	cacaattaag	ggtgtagaag	120
gaagtacgga	catcaagggt	attgctgtcg	cttgaggag	atcgaggaga	aagcacgcac	180
caagggtgaa	tacaataaat	cggtgagatt	tatggctttt	ccatcatggt	caagacggaa	240
aactctcaaa	gagttgttcg	actgctcctc	caaccgcttt	tcgtgaaagg	gcanagagca	300
tctactatac	ctacaataac	gggaagttag	cttctgatcc	caacttgctt	gtcagaactt	360
tatcaatgct	ctcgagcgta	ttccaaaggt	gatgaatcac	accgagaaag	ataaggaaaa	420
ggtttctgca	aacaaggagg	ttatatgacc	attgcgggtg	ggtcgtggaa	gaaagaggac	480
gagcttcgct	tctcaaagga	caggcagccc	gaactgggat	agaaaaattg	cactcacgcc	540
gcacctcccc	gaggaagaga	aagaaa				566

(2) INFORMATION FOR SEQ ID NO:342

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1212 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1212

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:342

tcagaagaga	attttatcta	tctctatttg	caaaagaaaa	agccaacatt	atagaagaag	60
aaaatttgat	attttgact	aaaggatttg	ttgcaggcta	aataaagact	ttataagtgc	120
atctcatatc	ctaattgcat	atttagacat	gcgttgcgta	atattgctga	aatcaagaaa	180
ggaaacataa	ctacttagag	aaaaaacgac	aagaggctcc	ttcttttaggt	gtaattttcc	240
ctatgttcaa	ggtgtaattg	aagaagaaat	actgtatgaa	atagaatcct	ttctaatacat	300
gggatagatg	tcaatttttag	gaataattta	tctcatggac	ttcaaccctt	tttgaaattg	360
aaaaatatgg	gatttatattg	tgggtggatat	gctaaaacta	tattttgaag	aaaagaatat	420
gataaaaatc	gctccctaaa	ttataaaaaga	gataaagaat	tactagcctt	acggcctctg	480
cgaggctttt	aaaaccagat	gaaagtgaat	aactttgcat	tttggcatca	aaattcttgt	540

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:344

```
gatcgcagga tcagattatc cccgtgaagt tgagtgattt aagacggata caaaagagtt    60
tatcgccaac cccacgaatc gtgccgatct tcccagagagg aaaagcgcga ggtagtaggg    120
cttggtacca tggaactggg tacttctctt atgctatttc gatcaaaaat cagatcgaga    180
ccagctatca gatgtaatca gtgtacaaaa tgaactcatt gctgcatata acgaagtttg    240
ggacgatttg ctcaaaagta tttccacaaa ccatacaagg agcttactcc ttccagcaga    300
aggctgtttt agaagcatat ccgntgcaca tttcagaaat gccttgtcta atctcaagta    360
aagaataagg aacaaaatgg gaaagtttaa taatccggcg ggcgtagaat gcccgaactc    420
aatacctcgt ctttgccctga ctgggttttg cgttcctctt ctttatcatg atggtaacga    480
caattcgtga gtgacgcccc aggtgtcgtg taataacctn cctaaagcga ctgaattgac    540
aagc
```

(2) INFORMATION FOR SEQ ID NO:345

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 851 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...851

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:345

```
gcaaaaaact gcagagaaag ttaggcccta tctccatagc cactccggag ctctcttgaa    60
tgcgcatgaa atgctgagag acaagatgca ctacttcacg agcagacgca atgcagtgtg    120
ggatattttta ttcacgtggg attcaagatg cgggtaagggt cttgctcctg atggagaatg    180
aagggtgacga agaactctcg cttatgctcg ttcgttggct cgcaacaatg gcagtgtgct    240
cgatgactac ccgagaccga tggtttaccg ccgactctat ccatgggaga aaacgactga    300
aagccggatt gccatcgaca atcaatatca gcagctacca cttatgctcg tcagctaccg    360
ctattggttg cgctttgccg gtgagtgtcc gatgtgatcg agcacttgcc ctctaccatc    420
attatccatc atcgaaatga cgctcttcga cattgaaagc tgcaatgata tgagaataat    480
cgaacaagat cttggctgcg cccatatgaa tcagtaatag aaagcagact gaagtatgcc    540
gcaaacgaga gacggatttg accggaggaa gatccgagg attgagcgct tcgccaatgg    600
acatctctat tacggtcttc atcaggacgg ggattcgggg tgattcgtga gttcgcgcc    660
gaagccacgg ccgtatatct gatcgggaac tttcgcgctg gcgtagattg ccacagtttc    720
ggtttgccgc tgtggtgaag cgggttcatt ggaattgcga ctttcattgcc gactgcttcc    780
gcatgctctc gctacaggct cttcttcgaa tggcccgggt gcgaaggaga gagataccgg    840
cttggtgcaa c
```

(2) INFORMATION FOR SEQ ID NO:346

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:344

gatcgagga	tcagattatc	cccgtgaagt	tgagtgattt	aagacggata	caaaagagtt	60
tatcgccaac	cccacgaatc	gtgccgatct	tcccagagagg	aaaagcgca	ggtagtaggg	120
cttggtacca	tggaactggg	tactttctct	atgctatttc	gatcaaaaat	cagatcgaga	180
ccagctatca	gatgtaatca	gtgtacaaaa	tgaactcatt	gctgcatata	acgaagtttg	240
ggacgatttg	ctcaaaaagta	tttccacaaa	ccatacaagg	agcttactcc	ttccagcaga	300
aggctgtttt	agaagcatat	ccgntgcaca	tttcagaaat	gccttgctta	atctcaagta	360
aagaataagg	aacaaaatgg	gaaagtttaa	taatccggcg	ggcgtgaaat	gcccgaactc	420
aatacctcgt	ctttgcctga	ctggtttttg	cgttcctctt	ctttatcatg	atggtaacga	480
caattcgtga	gtgacgcca	aggtgtcgta	taataacctn	cctaaagcga	ctgaattgac	540
aagc						544

(2) INFORMATION FOR SEQ ID NO:345

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 851 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...851

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:345

gcaaaaaact	gcagagaaag	ttaggcccta	tctccatagc	cactccggag	ctctcttgaa	60
tgcgcatgaa	atgctgagag	acaagatgca	ctacttcacg	agcagacgca	atgcagtgtg	120
ggtattttta	ttcatcgtgg	attcaagatg	cgggtaagggt	cttgctcctg	atggagaatg	180
aagggtgacga	agaactctcg	cttatgctcg	ttcgttgggt	cgcaacaatg	gcagtgtgct	240
cgatgactac	ccgagaccga	tggtttaccg	ccgactctat	ccatgggaga	aaacgactga	300
aagccggatt	gccatcgaca	atcaatatca	gcagctacca	cttatgctcg	tcagctaccg	360
ctattggttg	cgctttgccg	gtgagtgtcc	gatgtgatcg	agcacttgcc	ctctaccatc	420
attatccatc	atcgaaatga	cgctcttcga	cattgaaagc	tgcaatgata	tgagaataat	480
cgaacaagat	cttggtctgc	cccatatgaa	tcagtaatat	aaagcagact	gaagtatgcc	540
gcaaacgaga	gacggatttg	accggaggaa	gatccggagg	attgagcgct	tcgccaatgg	600
acatctctat	tacggtcttc	atcaggacgg	ggattcgggg	tgattcgtga	gttcgcgccc	660
gaagccacgg	ccgtatatct	gatcgggaac	tttcgcgctg	gcgtagattg	ccacagtttc	720
ggtttgcgcc	tgtggtgaag	cgggttcacg	ggaattgcga	ctttcatgcc	gactgcttcc	780
gcatgctctc	gctacaggct	cttcttcgaa	tggcccgggtg	gcgaaggaga	gagataccgg	840
cttggtgcaa	c					851

(2) INFORMATION FOR SEQ ID NO:346

cggaaagggtg	ggctatcggt	tcggtatcct	acccttttga	tctttctctt	caccgggatg	180
ctcttcggag	tggatgattc	ggttttcagt	tttctaaatg	cccgatgtgg	gcacaagtcg	240
gtaggatcat	cgctctctcc	attattctct	tcaccgggtg	tatggatacg	cggacagaaa	300
ggtgcgtccg	gtcattgccc	agggacttac	gctgtctact	ttggtgtctt	gctgacagct	360
cttctatccg	ggttctttat	cttttggctg	agggttcgga	ctttggccct	taccggttcg	420
ctctttctac	ctctttgctg	cggctgccac	gatggccagt	acncgactcg	gcttcggtat	480
tcgccatcct	cgttcgcaaa	agatgcagct	caaagagaat	ctggctcccc	acactggagt	540
ggagagcggg	agtaacgacc	cccatggcgt	atatgctgac	catcgcacca	tcgatttcat	600
caccaccg						608

(2) INFORMATION FOR SEQ ID NO:348

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 475 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...475

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:348

gagctggtct	tcgatacggg	catccagcgc	aacatcaaac	taagcgaggc	cccagccacg	60
gtattccggc	actgctctac	gatgccgata	gccgcggacg	gtcaatcata	tgcagctggc	120
ggccgagctg	atcaaaaagc	acaaacaaaa	ggagcctgac	tctcatatga	agcatacgaa	180
gaaaacgctc	ggtcgtgcct	ggactcccctc	ctcgatgcgg	aggatcatagg	gtcttcttcc	240
atcaggaagt	ggccatcagc	gatatatacc	ccaatcccga	tcaaccgcgc	cggatttcga	300
ggaggagtcc	ctgaaagaac	tggccgcttc	gctccgttcg	atagattggg	acagcccatc	360
acactactga	agaagtccgn	cggcgactat	atatcatctn	cggagaacgc	cgcttggcgt	420
gcggccccgaa	tggccgggtat	gccaccctgn	cggcatacat	caagacggaa	gagga	475

(2) INFORMATION FOR SEQ ID NO:349

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 729 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

cggaaagggtg	ggctatcggt	tcggtatcct	acccttttga	tctttctctt	caccgggatg	180
ctcttcggag	tggatgattc	ggttttcagt	tttctaaatg	cccgatgtgg	gcacaagtcg	240
gtaggatcat	cgctctctcc	attattctct	tcaccgggtg	tatggatacg	cggacagaaa	300
ggtgcgtccg	gtcattgccc	agggacttac	gctgtctact	ttggtgtctt	gctgacagct	360
cttctatccg	ggttctttat	cttttggctg	agggttcgga	ctttggccct	tacccgttcg	420
ctctttctac	ctctttgctg	cggctgccac	gatggccagt	acncgactcg	gcttcggtat	480
tcgccatcct	cgttcgcaaa	agatgcagct	caaagagaat	ctggctcccg	acactggagt	540
ggagagcggg	agtaacgacc	cccatggcgt	atatgctgac	catcgcacca	tcgatttcat	600
caccaccg						608

(2) INFORMATION FOR SEQ ID NO:348

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 475 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...475

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:348

gagctgggtct	tcgatacggg	catccagcgc	aacatcaaac	taagcgaggc	cccagccacg	60
gtattccggc	actgctctac	gatgccgata	gccgcggacg	gtcaatcata	tgcagctggc	120
ggccgagctg	atcaaaaagc	acaaacaaaa	ggagcctgac	tctcatatga	agcatacgaa	180
gaaaacgctc	ggtcgtgcct	ggactccctc	ctcgatgcgg	agggtcatagg	gtcttcttcc	240
atcaggaagt	ggccatcagc	gatataatac	ccaatccccg	tcaaccgcgc	cggatttcga	300
ggaggagtcc	ctgaaagaac	tggccgcttc	gctccggttc	atagattggg	acagcccatc	360
acactactga	agaagtccgn	cggcgactat	atatcatctn	cggagaacgc	cgcttggcgt	420
gcggccccgaa	tggccgggtat	gccaccctgn	cggcatacat	caagacggaa	gagga	475

(2) INFORMATION FOR SEQ ID NO:349

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 729 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...878

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:351

gccgtgtaag	cgcaataggg	tcaagcgttt	ggtcagggag	gcttatcggg	caacaaacac	60
ctcctgaacg	atgtcctcca	agagagacag	atctatgcac	tattgcattt	atggtagtat	120
cggatgaact	tcctgacttt	cgtaacagga	gagagcgatg	caaaagagtc	tgatcagaat	180
tgccggaaat	gtacctcatc	ggctttgaaa	aacgagtaaa	tacgatgcga	ctgatcaagg	240
ctttttcgtg	caactcttac	tgctccccat	tttcttctac	aagcggttta	tatccccgctt	300
acaccgcctt	catgccgggt	tacccccctc	tggtcgtcct	atgcatcgaa	gccttacgta	360
aatatggccc	gggcaaagga	ctattgctga	gctcaagcgt	attctccgct	gtcaccggtg	420
gggtgggaagt	ggctatgacc	cgttccgtaa	gaagttttct	tcacttaatt	cctcttatat	480
ggtattttctc	acattcatac	tcattctgca	gctcgcaacg	atagcgagat	cattcgagtc	540
ggaatctacg	accgaatgaa	accatatctc	cgaatacttt	ttgctccacg	gcattcatcc	600
gtggagtgtg	ccagagaatt	atagcggaga	gttgcttctg	tccgtgaagg	attgaatcac	660
gacgaggttg	ttgctctggg	agaatggggc	tggataaggt	gtgcagtaca	ccgtatgaaa	720
agcaacgaaa	agcttcctcg	atcaaattga	tctgagcgaa	gagtttggca	tgccggtgct	780
actgacatag	tacgagcatg	ggatgatcct	ttggcgatca	aaaacaggta	aagcttcaca	840
gcccgtggat	cgttcatggg	ttcggagtag	tgaaaaaac			878

(2) INFORMATION FOR SEQ ID NO:352

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 500 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...500

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:352

gatttttctg	aaaccactag	tagatttttc	tgaactaat	atcagattca	cgtactgaaa	60
aattaagtct	tatcaaagca	cacttggtac	ggctttgacg	ctctactttt	cattccacga	120
gcgattaacg	caactcttct	tcgatcaacg	gaactcggta	cgacggttca	gttggtcgca	180
gactgactgc	tgctccccgg	caaagggtgct	acgaattcct	cggtagcac	atcgcccttc	240

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...878

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:351

gccgtgtaag	cgcaataggg	tcaagcgttt	ggtcagggag	gcttatcggg	caacaaacac	60
ctcctgaacg	atgtcctcca	agagagacag	atctatgcac	tattgcattt	atggtagtat	120
cggatgaact	tcttgacttt	cgtacagggg	gagagcgaag	caaaagagtc	tgatcagaat	180
tgccggaaat	gtacctcatc	ggctttgaaa	aacgagtaaa	tacgatgcga	ctgatcaagg	240
ctttttcgtg	caactcttac	tgctcccat	tttcttctac	aagcggttta	tatcccgctt	300
acaccgcctt	catgccggtt	tacccctca	tgctcgtcct	atgcacgaa	gccttacgta	360
aatatggccc	gggcaaagga	ctattgctga	gctcaagcgt	attctccgct	gtcaccgctg	420
gggtggaagt	ggctatgacc	cgttccgtaa	gaagttttct	tcacttaatt	cctcttatat	480
ggtattttctc	acattcatac	tcattctgca	gctcgcgaacg	atagcgagat	cattcgagtc	540
ggaatctacg	accgaatgaa	accatatctc	cgaatacttt	ttgctccacg	gcattcatcc	600
gtggagtgtg	ccagagaatt	atagcggaga	ggtgcttctg	tccgtgaagg	attgaatcac	660
gacgaggttg	ttgctctggg	agaatggggc	tggataaggt	gtgcagtaca	ccgtatgaaa	720
agcaacgaaa	agcttcctcg	atcaaattga	tctgagcgaa	gagtttggca	tgccggtgct	780
actgacatag	tacgagcatg	ggatgatcct	ttggcgatca	aaaacaggta	aagcttcaca	840
gcccgtggat	cgttcatggg	ttcggagtag	tgaaaaac			878

(2) INFORMATION FOR SEQ ID NO:352

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 500 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...500

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:352

gatttttctg	aaaccactag	tagatttttc	tgaaactaat	atcagattca	cgtactgaaa	60
aattaagtct	tatcaaagca	cacttggtac	ggctttgacg	ctctactttt	cattccacga	120
gcgattaacg	caactcttct	tcgatcaacg	gaactcggta	cgacggttca	gttggctgca	180
gactgactgc	tgctcccggg	caaagggtgct	acgaattcct	cgggtgagcac	atcgccctcc	240

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:354

ccgatgccgc	tacctccggt	tttggtcgt	tagaaaggaa	caaacatatg	tcgaacacct	60
cttgaggaat	aggagtgcc	ttgttctcca	catgaagggt	agtctgtgtt	catccaacga	120
atcgagacgt	tcctcgacac	gaatacgaaa	agtcgtttct	ccgtatcggc	aggatattcc	180
gcctcggcag	cattttgacg	aggtttatca	gtaccgaagt	caattgccgg	cggtcggccg	240
ggacatcagc	tccacgggta	tttcttcaat	atccaccttt	atatcgttgg	aggaagaagc	300
tcttcttgca	ggcgcaatat	ccccgaaaga	aaagcatgta	aagaatgtcc	tccttctcgg	360
gaggaggaac	tgccgtaaac	ttacggtagt	ccgtacaaag	gataacagcc	ccactccggt	420
actacgaatg	gtatccaatc	cgtagacagc	atc			453

(2) INFORMATION FOR SEQ ID NO:355

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 988 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...988

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:355

ggcggccttc	taccaaatag	cacaggcttt	cagaggggagc	cgaagcctct	agccattcct	60
tcttttgccg	aatatgagga	tgcttgctcg	atgtacgaca	cgaagtctgc	ttctatcctt	120
ctaatagagga	cataggcgag	gctgattttc	caatatggat	ttctgctggc	tttgtaaccc	180
gaacaatccc	gatggcgact	gctgcagcgg	acagagatcc	tgcgctctgct	caacgatcat	240
cctgaacgac	attcgtcctc	gaccagtcct	atgtatcggt	tacgaccgag	gaaggattcg	300
tccggccgac	atcaaaggac	ggaaaaacct	tgtcatggtc	tatctttcag	tcatgcctat	360
gggataccgg	ggcttcgcat	cggctatatc	gtgccaataa	agattttatg	aagcgtgtgg	420
cggctttcag	tacgccgtgg	gggtaaacgc	actggctata	gaggctgcca	aattcatcct	480
tatccatcct	cacaattcac	tctgccgata	cgcaagtggc	aacgcaatac	ggtagattta	540
tcacagccct	gaatcgccct	gatggtgtag	aagtacatcc	ctcaggcaca	cgttcttcct	600
ccttcgcctc	aagaaaggaa	cagcggccga	actgaaaaat	atatgctgga	ggaatataat	660
atgctgattc	gggatgcttc	caatttcgtg	gtctcgatga	atcctacgtc	cgaatcacca	720
cgcagcgacc	tgctcgaacc	agcttttcat	caaagctctg	gagacattcc	tcgagaaata	780
ctaaaatagc	agatgctgca	gatcagtcct	tgtccttctc	ctgtactcta	tcctattaca	840
agacggagca	agaagagtac	acgggtgtat	cgtggatatc	ttcgtgccgg	taccaccatc	900
acaacggcac	tgatgaacgg	tgccgtagca	tatccgatgc	accgttgaga	gcggaaatct	960
atgccgggaa	cggttcttcg	agagcgag				988

(2) INFORMATION FOR SEQ ID NO:356

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 685 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:354

ccgatgccgc	tacctccggt	tttggtcgta	tagaaaggaa	caaacatatg	tcgaacacct	60
cttgaggaat	aggagtgcc	ttgttctcca	catgaagggt	agtctgtgtt	catccaacga	120
atcgagacgt	tcctcgacac	gaatacgaaa	agtcgtttct	ccgtatcggc	aggatattcc	180
gcctcggcag	cattttgacg	aggtttatca	gtaccgaagt	caattgccgg	cggtcggccg	240
ggacatcagc	tccacgggta	tttcttcaat	atccaccttt	atatcgttgg	aggaagaagc	300
tcttcttgca	ggcgcaatat	ccccgaaaga	aaagcatgta	aagaatgtcc	tccttctcgg	360
gaggaggaac	tgccgtaaac	ttacggtagt	ccgtacaaag	gataacagcc	ccactccggt	420
actacgaatg	gtatccaatc	cgtagacagc	atc			453

(2) INFORMATION FOR SEQ ID NO:355

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 988 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...988

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:355

ggcggccttc	taccaaatag	cacaggcttt	cagagggagc	cgaagcctct	agccattcct	60
tcttttgccg	aatatgagga	tgcttgctcg	atgtacgaca	cgaagtctgc	ttctatcctt	120
ctaattgagga	cataggcgag	gctgattttc	caatatggat	ttctgctggc	tttgtaaccc	180
gaacaatccc	gatggcgact	gctgcagcgg	acagagatcc	tgcgtctgct	caacgatcat	240
cctgaacgac	attcgtcctc	gaccagtcct	atgtatcggt	tacgaccgag	gaaggattcg	300
tccggccgac	atcaaaggac	ggaaaaacct	tgtcatggtc	tatctttcag	tcatgcctat	360
gggataccgg	ggcttcgcat	cggctatatc	gtgccataaa	agattttatg	aagcgtgtgg	420
cggctttcag	tacgccgtgg	gggtaaaccg	actggctata	gaggctgcca	aattcatcct	480
tatccatcct	cacaattcac	tctgccgatc	cgcaagtggc	aacgcaatac	ggtagattta	540
tcacagccct	gaatcgccct	gatggtgtag	aagtacatcc	ctcaggcaca	cgttcttcct	600
ccttcgcctc	aagaaaggaa	cagcggccga	actgaaaaat	atatgctgga	ggaatataat	660
atgctgattc	gggatgcttc	caatttcgtg	gtctcgatga	atcctacgtc	cgaatcacca	720
cgcagcgacc	tgctcgaacc	agcttttcat	caaagctctg	gagacattcc	tcgagaaata	780
ctaaaatagc	agatgctgca	gatcagtctc	tgctcttctc	ctgtactcta	tcctattaca	840
agacggagca	agaagagtac	acggtgttat	cgtggatata	ttcgtgccgg	taccaccatc	900
acaacggcac	tgatgaacgg	tgccgtagca	tatccgatgc	accgttgaga	gcggaaatct	960
atgccgggaa	cggttcttcg	agagcgag				988

(2) INFORMATION FOR SEQ ID NO:356

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 685 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

aatgggattc aatgatgcag tgcagcca

568

(2) INFORMATION FOR SEQ ID NO:358

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1812 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1812

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:358

ggaaaaataat	acaaagtact	ctcatattgg	taattcacaa	tggcaaaaaa	tatctaagca	60
cactgaaagt	atcggccgga	ctattctccg	ccatcttggt	gtcttattgg	ccagcggact	120
tctggccaat	gcacagacag	ttagcacgag	acgaaagatc	aaggtctgca	gatgagcctc	180
ttgatctctt	ctcctttaca	gaagcgggat	acactcgcta	cggtcattgc	gcattcagga	240
ttctcatccc	gtacaaggga	cggatattgc	ttacaattat	ggcatgttcg	attaaacgaa	300
cctaattttca	tgcttcgatt	tgtacgaggc	gaaacggatt	attccggtga	agctctttat	360
acatcctatt	atgtggaaga	ataccttcgg	agggaagagg	aatcgtggaa	ttagtattga	420
atctcacaca	ggaagagatc	gaaaagctga	gagggtattg	gcatggaata	ttcgccccga	480
gaataaacga	accgctataa	tatcttttat	gacaactgtg	ctaccgcctt	tatcgagata	540
taaaagaaac	cacaggagct	accttgcaaa	tccctcatga	gggtgaggga	gaaagtggag	600
acagctgata	gatgaatgct	gtaccgatgc	cccttggtca	agttcggcat	cgatctggct	660
ctcggggcga	aaacagatac	ctatgcaatc	cggaggagca	gttattcctg	ccgaatagaa	720
tgttggtatc	gctacacgta	ccactctact	ctatcccaat	ggtcgatcaa	cgccactcat	780
caggatacca	aagagtgggt	tccggctaag	ccggccagta	tggaaacctg	ggagagggct	840
ggcctacacc	tttattggct	tctatagctt	tgctgatagt	tttattgcag	tagctgtttg	900
ggatgttcgt	cgcaaggata	tatgctatgt	aatgactcta	tcttattagc	cattatgggg	960
ttatcgggat	gtgttatatt	attctgtcat	ttttctcaga	acatccgcat	accaacccga	1020
attacaactc	ttcctgcttc	atccccctca	tctgcttata	gggttgccct	tgactgtgta	1080
ccgctctttc	accgagcagg	ctttgtctat	cattttatta	actttgcgag	ctaagtttga	1140
tccggtttgg	aatatgggtt	ttgccgcaac	aagtaggctc	ccgctctatg	tggccggcat	1200
tgctctatgg	ttgctttccg	ctcgcggata	ttggtaaata	gatggagaaa	gaacgttcgg	1260
tgaacgact	tgtacgaccc	ttttggccgt	attgactata	gggaatgtta	cagtacaggg	1320
gcacggttc	atcccaagct	ggtggtggta	attaccattg	accagttgag	agtgatctcc	1380
tctcgttttg	ccgctcacaa	tatggcacag	gtggatttaa	tatctgctgc	aggatggact	1440
tgtttttagc	aacgtagact	tccgattcga	ggggtagacg	aagcatcggc	tattgcagg	1500
atatataacc	gcacctatct	aatcgtcaca	gtattacagg	cagtactgta	ttcgacagag	1560
aaaagaacag	tccggtatcca	ttttggaaga	caaaaacttc	ttaggcaatt	atacatcgaa	1620
catctgtctc	ctctcaagct	cacttcgggc	actatcggcg	atgaacacgg	agtgaacgg	1680
atggaaggag	caagggtttat	gcgatagcac	cgaatccgta	gcagcaatcg	tagctgcagg	1740
tcagtctgga	aatggtgcat	tctgctcgaa	gatcgtaagg	ggatgtgggc	tacgactacc	1800
tactacaaag	at					1812

(2) INFORMATION FOR SEQ ID NO:359

(i) SEQUENCE CHARACTERISTICS:

(2) INFORMATION FOR SEQ ID NO:358

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1812 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1812

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:358

```

ggaaaataat acaaagtact ctcatattgg taattcacaa tggcaaaaaa tatctaagca      60
cactgaaagt atcggccgga ctattctccg ccatcttgtt gtcttattgg ccagcggact      120
tctggccaat gcacagacag ttagcacgag acgaaaagatc aaggtctgca gatgagcctc      180
ttgatctctt ctccctttaca gaagcgggat acactcgcta cggtcatgtc gcattcagga      240
ttctcatccc gtacaaggga cggatattgc ttacaattat ggcatgttcg attaaacgaa      300
cctaattttca tgcttcgatt tgtacgaggc gaaacggatt attccgttga agctctttat      360
acatcctatt atgtggaaga ataccttcgg agggaaagagg aatcgtggaa ttagtattga      420
atctcacaca ggaagagatc gaaaagctga gaggtatttg gcatggaata ttcgccccga      480
gaataaacga accgctataa tatcttttat gacaactgtg ctaccgcct tatcgagata      540
taaaagaaac cacaggagct accttgcaaa tccctcatga gggtgaggga gaaagtggag      600
acagctgata gatgaatgct gtaccgatgc cccttggtca agttcggcat cgatctggct      660
ctcggggcga aaacagatac ctatgcaatc cggaggagca gttattcctg ccgaatagaa      720
tgttggatct gctacacgta ccactctact ctatcccaat ggtcgatcaa cgccactcat      780
caggatacca aagagtgggt tccggctaag cgggccagta tggaaacctgc ggagagggtc      840
ggcctacacc tttattgggt tctatagctt tgctgatagt tttattgcag tagctgtttg      900
ggatgttcgt cgcaaggata tatgctatgt aatgactcta tcttattagc cattatgggg      960
ttatcgggat gtgttatatt attctgtcat tttctcaga acatccgcat accaaccgga      1020
attacaatct ttcctgcttc atccccttca tctgcttata gggttgcctc tgactgtgta      1080
ccgctctttc accgagcagg ctttgtctat cattttatta actttgcgag ctaagtttga      1140
tcggtttggc aatatgggtt ttgccgaac aagtaggttc ccgctctatg tggccggcat      1200
tgctctatgg ttgctttccg ctgcgcgata ttggtaaata gatggagaaa gaacgttcgg      1260
tgaaacgact tgtacgacct ttttggccgt attgactata gggaatgtta cagtacaggg      1320
gcatcgggtc atcccaagct ggtgggtggt attaccattg accagttgag agtgatctcc      1380
tctcgttttg ccgctcacaa tatggcacag gtggatttaa tatctgctgc aggatggact      1440
tgtttttagc aacgtagact tcggattcga ggggtagacg aagcatcggc tattgcagg      1500
atatataccg gcacctatct aatcgtcaca gtattacagg cagtactgta ttcgacagag      1560
aaaagaacag tcggtatcca ttttggaaaga caaaaacttc ttaggcaatt atacatcgaa      1620
catctgtctc ctctcaagct cacttcggcg actatcggcg atgaacacgg agtgcaacgg      1680
atggaaggag caaggtttat gcgatagcac cgaatccgta gcagcaatcg tagctgcagg      1740
tcagtctgga aatgggtgcat tctgctcgaa gatcgtaagg ggatgtgggc tacgactacc      1800
tactacaaag at                                     1812

```

(2) INFORMATION FOR SEQ ID NO:359

(i) SEQUENCE CHARACTERISTICS:

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...691

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:360

```
gccgtgctcg tccatttcga cctcgcacag gccgaggtcc ttcattctctt ggccaaatga      60
cgcagcagca ccaattgctt gtccgctcag gggaaagtgt agaggattcg tcgctttgcg      120
tatcgaagcc tacatatcgg agaaatcctc ttccagttcc atattctttg ttccgttggt      180
atgcttcatg tttcttcctc tgatgctgtc gacgatgaag tagagaatga tgagcgcata      240
catgcgatgg ccaaccattc ggcgccctgcc atggcgtgcc attcttgggc aaaacatcga      300
actccatgta tttgaggatc gcacttacca caccatcaa agccctccgg cgatgaatcc      360
ggaagcgatg agcgtaccgc gttccttgcg gatttattga cagaagcgtc cttcgagcgg      420
gtgctgacga accagctgac ggtccgccga tgaggagagg tgtatttagt tgtaacggga      480
taaacatacc agtgcaaaag gcagtgccgg caccgctata ctgctcagga tcagagccat      540
atagctccta cgccatagag aatccaaggc gtattaccgc cttccatcgc ggcttgatca      600
cggctgccat cgcattggcc tgcggagcca ccagagctga tcgcccgtaa agccataggt      660
cttgttcagg atcatcatca caccgggggg a                                     691
```

(2) INFORMATION FOR SEQ ID NO:361

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1057 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1057

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:361

```
agattaataa ttgctgggtga ttacttcagg attatcttgt tcgttgacaga tcgggaaata      60
ctacagcagg cttgaacacn tgggcttcct ccacgaggat ccaggcatat gccatgatga      120
tgatgatgtc gcccgatga acgatgcggc agctgctcca ttgagacaga ttacccccga      180
acctcttttg cccggttggt ataggtctcc aagcgtgctc cgttgttggt gtccacgatt      240
tggaacttctc tccggcgatg atgttggcag catccatcag atcttcacg atgggatgct      300
accacatag ttgaggttgg cctccgtaat ggttacgcgg tgtttttgga ttttaatact      360
tcgacgtaca tgttgttttc caattctcta ttttttacg attgcaaagt aacttaaaat      420
cgctgtaata ttcgcataaa acggcagttt aacgcaattg ggcttgatta ttaaggacat      480
acggcgcaaa tgcagaaaat ccgccacctg ccacgaggca gtaatatgcg gattattgca      540
cagaaagggt ttcaaactcg taccgaaaag caaggtaatc acctccgtaa agaggagaaa      600
aacagcggtt ttccgtgcac ccgttgctgt tgccttatgc tctatatatt gcatagcagg      660
gttaggctct ttcattgtta attttgaacc aaaaagaaaa gacaatggca agaagcacat      720
tcaagggtgt gttcttgtga atggcagcaa ggagaaagaa ggtatcgctc ccatcatggg      780
acggttacaa tcaacggcac ggtggctcag ttcagttgca agcgcaccat cccaaggagt      840
```

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...691

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:360

```
gccgtgctcg tccatttcga cctcgcacag gccgaggtcc ttcattctctt ggccaaatga      60
cgcagcagca ccaattgctt gtccgtcgag gggaaagtgt agaggattcg tcgctttgcg      120
tatcgaagcc tacatatcgg agaaatcctc ttccagttcc atattctttg tttcgttggt      180
atgcttcatg tttcttcctc tgatgctgtc gacgatgaag tagagaatga tgagcgcata      240
catgcgatgg ccaaccattc ggcgctgcc atggcggtgcc attcttgggc aaaacatcga      300
actccatgta tttgaggatc gcacttacca caccatcaa agccctccgg cgatgaatcc      360
ggaagcgatg agcgtaccgc gttccttgcg gatttattga cagaagcgtc cttcgagcgg      420
gtgctgacga accagctgac ggtccgccga tgaggagagg tgtatttagt tgtaacggga      480
taaacatacc agtgcaaaag gcagtgcggg cagcctata ctgtcagga tcagagccat      540
atagctccta cgccatagag aatccaaggc gtattaccgc cttccatcgc ggcttgatca      600
cggctgccat cgcatgggcc tgcggagcca ccagagctga tcgcccgtaa agccataggt      660
cttgttcagg atcatcatca caccgggggg a                               691
```

(2) INFORMATION FOR SEQ ID NO:361

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1057 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1057

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:361

```
agattaataa ttgctggtga ttacttcagg attatcttgt tcgttgcaga tcgggaaata      60
ctacagcagg cttgaacacn tgggcttcct ccacgaggat ccaggcatat gccatgatga      120
tgatgatgtc gcccggatga acgatgcggc agctgctcca ttgagacaga ttacccccga      180
acctcttttg cccggttggt ataggtctcc aagcgtgctc cgttgttggt gtccacgatt      240
tggacttctc tccggcgatg atgttggcag catccatcag atcttcacgc atgggatgct      300
acccacatag ttgaggttgg cctccgtaat ggttacgcgg tgtttttgga ttttaatact      360
tcgacgtaca tgttgttttc caattctcta tatttttacg attgcaaagt aacttaaaat      420
cgctgtaata ttgcataaaa acggcagttt aacgcaattg ggcttgatta ttaaggacat      480
acggcgcaaa tgcagaaaaa ccgccacctg ccacgaggca gtaatatgcg gattattgca      540
cagaaagggt ttcaaactcg taccggaaag caaggtaatc acctccgtaa agaggagaaa      600
aacagcgggt ttccgtgcat ccgttgctgt tgctctatgc tctatatattt gcatagcagg      660
gttaggctct ttcattgtta attttgaacc aaaaagaaaa gacaatggca agaagcacat      720
tcaagggtgct gttcttgtga atggcagcaa ggagaaagaa ggtatcgctc ccatcatggg      780
acggttacaa tcaacggcac ggtggctcag ttcagttgca agcgaccat cccaaggagt      840
```

ttcagaaatc	gtgccgttcg	gcaatttttg	ctgtcaccgt	cttggggaca	gactaccgta	300
gcctttccac	gtaagcctgt	cggccgctat	gccacgactc	gtgggtaatc	caccacggat	360
ttggctctgc	ggtcagatag	tccgaggttg	tagcatcggg	gcctttcctg	tcggcatgcg	420
aacccaattc	gatccgaata	tccgattgtc	cgtgaggata	cgaaatcagt	tcgtccaagc	480
tcttcatgct	ttcgggcgaa					500

(2) INFORMATION FOR SEQ ID NO:353

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 570 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...570

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:353

agaagataaa	gacttcggcc	catgccaaag	aattggcaga	gaagtttgca	agaaagaagg	60
ccgtcagccg	cgtatcatga	tcgccaaaat	ggggcaggcg	ggcatgaccg	tggtgccaaa	120
gtggctcgcta	ccggctatgc	cgactgcatg	tcgacgtcga	tatggggcct	ctgttccaaa	180
caccggaaga	agccgccgtc	aagctgtgga	aaacgacgtc	cacgtgatgg	gcgtttcctc	240
tctggagccg	gtcacaagac	gctgatccct	caggtaatag	cagagctgga	gaagtcggcc	300
gtccggatat	tctggtgaca	gccggagggtg	ttataccggc	gcagattacg	acttcctcta	360
tcaggccggt	gtcgtcgcca	tcttcggccc	cgtacccccg	tggcctactc	ggcagccaaa	420
gtgcttgaga	ttcttttgga	aaataatctc	tactctcgat	aaggagtatt	tcagcattct	480
ctgtatggcc	ctcatatgat	tcctcgaaag	ggagtcgtat	gagtggcttt	tttatgttca	540
agtcattagt	gtcctaaaag	tttcttcttg				570

(2) INFORMATION FOR SEQ ID NO:354

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...453

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...659

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:363

ggcttgagaga	gccgtttcga	agagatttcc	acgcttatca	cggatccggc	gtaatcgagg	60
acatgaagcg	tttcacgaag	ttgagcaagg	agtatcgcat	ctggaaaaga	tccatacggc	120
cgggcgcgac	tatcgcaatc	tgctcgcaac	atcgaggaag	caaagcatac	catggccaaa	180
gagagcgacg	aggagtgcgc	gagatggctc	gcgagatgct	ggccgaggct	aacgaacgct	240
tgcccttttg	gaggaggaga	tcaagatgct	actcattccg	gccaatccgg	aggagacaag	300
aatgccatcg	tggaaattcg	cggaggaacg	ggggggcgatg	aggtgcactt	tttgccggcg	360
acctctaccg	catgtacgtc	aagtattgct	aggcaaaggc	tggcagggtg	aggtcaccga	420
cctgagcgaa	ggagctacgg	gggttacaaa	gagatcgctc	tctcggtcaa	gggggaagga	480
gtgtatggta	cctgaaatat	gagagcgggtg	tgacccgtgt	ccagcgcgta	cctgcgacca	540
gacacagggg	cgcatacata	cctcggcagc	taccgtggct	gtcttgccga	agccgaagaa	600
gtggacgtgg	agatcaatcc	ggcagacatc	gagatgctga	cgttccgttc	aggcgggtgc	659

(2) INFORMATION FOR SEQ ID NO:364

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1298 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1298

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:364

ggaaattggg	atgaagcact	tgcccttgaag	cttgnacagca	acggcgaggc	agatggaagg	60
aacgtgtgat	catagacggt	cgccgcaagg	atatccagat	tactatctgg	taagagacgc	120
cgaagcaaac	gccattcgca	aggagtgaag	cgcatgcacc	atctgggtatt	ggatcatggg	180
tacaagcgag	tgctgaggac	gattactgga	tcgatcgacc	gaaaaatgca	ccctttttca	240
gttctctttt	tacgatgttt	tcttccgcca	tgaggagaag	ctgaaacgtg	ccccaaacca	300
acgaaagagg	gcgtcaaagt	cgatcatgcag	ctatatgctc	cattgttcac	cccgaccaga	360
agatctgtat	gacgggcaat	agtcctgctc	ttgcaactgg	tcagtggagc	aagcccgtgc	420
catgcacat	ttgggaaagg	ggaatggctc	atcacgctag	agaaggatga	attacctcca	480
cttttggaa	taagtttttc	attgccggac	aagacgactg	ctccgacatc	cgttgggaaa	540
gggagaaaaa	agatcttacc	gattcgaaga	gacggatgcc	tatgggtgct	ctatttggcc	600
gggtctctgt	tccgcgaggg	tgatttatat	ccacgcttgc	cggcaccgtc	atccccctat	660
tcggactgcg	caccacaaag	gattgggcat	aggagacttc	gggtgcactnc	gccgtatggg	720
ggactgggag	gcaataccgg	ccagcgcatt	atacagctcc	tgcccatcaa	cgacaccact	780
tacaacgctc	ctatcgcgac	tcctatccat	ataatatagt	atcggtcacc	gcctccatcc	840
tatctatgcc	gatttgggat	cgctaccacg	actgaagaat	agggtctgat	ggcaaaaatg	900

ggattc aatgatgcag tgcagcca

568

INFORMATION FOR SEQ ID NO:358

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1812 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1812
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:358

aataat	acaaagtact	ctcatattgg	taattcacia	tggcaaaaaa	tatctaagca	60
gaaagt	atcggccgga	ctattctccg	ccatcttggt	gtcttattgg	ccagcggact	120
gccaat	gcacagacag	ttagcacgag	acgaaagatc	aaggtctgca	gatgagcctc	180
tctctt	ctcctttaca	gaagcgggat	acactcgcta	cggtcatgtc	gcattcagga	240
catccc	gtacaaggga	cggatattgc	ttacaattat	ggcatgttcg	attaaacgaa	300
atttca	tgcttcgatt	tgtacgaggc	gaaacggatt	attccgttga	agctctttat	360
cctatt	atgtggaaga	ataccttcgg	agggaagagg	aatcgtggaa	ttagtattga	420
cacaca	ggaagagatc	gaaaagctga	gagggtattt	gcatggaaata	ttcgccccga	480
aaacga	accgctataa	tatcttttat	gacaactgtg	ctacccgcct	tatcgagata	540
agaaac	cacaggagct	accttgcaaa	tccctcatga	gggtgaggga	gaaagtggag	600
ctgatc	gatgaatgct	gtaccgatgc	cccttggtca	agttcggcat	cgatctggct	660
gggcga	aaacagatac	ctatgcaatc	cggaggagca	gttattcctg	ccgaatagaa	720
ggatct	gtacacgta	ccactctact	ctatcccaat	ggtcgatcaa	cgccactcat	780
atacca	aagagtgggt	tccggctaag	ccggccagta	tggaaacctgc	ggagaggggt	840
tacacc	tttattggct	tctatagctt	tgtctgtagt	tttattgcag	tagctgtttg	900
gttcgt	cgcaaggata	tatgctatgt	aatgactcta	tcttattagc	cattatgggg	960
cgggat	gtgttatttt	attctgtcat	ttttctcaga	acatccgcat	accaaccgga	1020
caatct	ttcctgcttc	atcccccttca	tctgcttatc	gggttgcctc	tgactgtgta	1080
tctttc	accgagcagg	ctttgtctat	cattttatta	actttgcgag	ctaagtttga	1140
tttggc	aatatggttt	ttgccgcaac	aagtaggctc	ccgctctatg	tggccggcat	1200
ctatgg	ttgctttccg	ctcgcggata	ttggtaaata	gatggagaaa	gaacgttcgg	1260
acgact	tgtacgacct	ttttggccgt	attgactata	gggaatgtta	cagtacaggg	1320
cggttc	atcccaagct	ggtgggtggt	attaccattg	accagttgag	agtgatctcc	1380
gttttg	ccgctcacaa	tatggcacag	gtggatttaa	tatctgctgc	aggatggact	1440
tttagc	aacgtagact	tcggattcga	ggggtagacg	aagcatcggc	tattgcaggt	1500
ataccg	gcacctatct	aatcgtcaca	gtattacagg	cagtactgta	ttcgacagag	1560
gaacag	tcggtatcca	ttttggaaga	caaaaaacttc	ttaggcaatt	atacatcgaa	1620
tgtctc	ctctcaagct	cacttcgggc	actatcggcg	atgaacacgg	agtgaacgg	1680
aaggag	caagggttat	gcgatagcac	cgaatccgta	gcagcaatcg	tagctgcagg	1740
tctgga	aatggtgcat	tctgctcgaa	gatcgtaagg	ggatgtgggc	tacgactacc	1800
acaaag	at					1812

INFORMATION FOR SEQ ID NO:359

- (i) SEQUENCE CHARACTERISTICS:

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...354
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:366

gagttgatct	cctttggacg	agacgtctcg	gatttcctgc	cggagggggt	gtcctcgatt	60
aagaaaatca	aaacaaaaag	ccttgcagtt	cagacttcgc	aaggcttttt	tgtgtccaaa	120
attcagccgg	tggtacatta	tcgggtctct	atgagaggaa	aaaagagtga	ttccgaaagt	180
agtgactctc	tcaatatcat	acgccccaaa	agttttcaac	aacgaagatg	agtttggaat	240
gattcaaata	agcatctgta	gagaggagaa	aagccgaggt	aaaagtgcag	ggaaaggaac	300
tggcatagat	cgaaattcca	cttaaaacca	agccgtacaa	cgactggata	taaa	354

(2) INFORMATION FOR SEQ ID NO:367

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 686 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...686

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:367

tccccggggt	ggattgattt	ggtttcgagt	atcccgatga	taaatttttg	cggtttggtc	60
gagtttttag	attgattcgt	ctattccgaa	ttttgagact	tttcgcacca	caaaggaatt	120
tgttacctat	gttttttagaa	tcaaagccag	ggcgcattta	cttcagccac	gatttttagcc	180
atcttattga	tcatttctct	tccatagcga	ttcttcaagt	cgaaaatgcg	tcgaccagca	240
atatccaaca	gcggaagatg	ctatttggtg	gtcttacgtt	acgatcacaa	ctgtggctat	300
ggagacaaat	accccgtaac	aaccgaagga	agaatcattg	caagtttttg	atgactgcag	360
gagtagggct	tttcggaact	tttacagcct	atttgcttcc	ttatttgtct	cagataacaa	420
aaaagaagaa	acagaaacaa	agaatgattg	tcaatcttat	tgctgctgtt	gcctgatatt	480
gagcagaata	cagctgatac	cgcttccact	taattccact	catgaactct	attatcaaaa	540
gatggttgta	cagcgaaggg	ggcaaattgt	attcttttcc	gattggagag	atagattgac	600
accaatgcat	tgtttagatt	ctaattctgt	ttgaaggata	agattcccga	ttaaatacat	660
tggcagtgct	aaaaaaacaa	atccct				686

(2) INFORMATION FOR SEQ ID NO:368

tgtgggatgt gaaaggcaac agggcgaaag gcaagagcag ggagccatcg ccaccaacct	900
ctcgctcgac aacatcaagg cgcaaatcat cagcactatc agcgtctttc cgaccgcgag	960
gcgttcgtca cggcggagat gtgcgcaatg cctatcaggg gctgggcagt gagtacgata	1020
ccctgctgag cgttcgacag ggaatgcgcc tctctgc	1057

(2) INFORMATION FOR SEQ ID NO:362

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1118 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1118

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:362

ccaaagacct ttatggcgat ggcagaaggc gatccggaag accacactta cgccaaaaaac	60
cactccttgc caccacccag gcagccatcc tctcgggcta ccaatccggt ctcaaagagt	120
gtctgaccga aatggcaaca ctctatccgg caggggaatgg caagagtatt ccacggggcca	180
agcagtcgct tcccttctga accggcttgg tatcatctcc gacctttggc gacaaatcga	240
aggaacagac aagaagagaa caaaatgctc atttccgatg ctccgtctct attgacagga	300
tcatcgacgg gagcgagacc cctttcgtct atgacaaaat cgggtacgca tcgaacacga	360
aatgatcgat gaatttcaag ataccagccg ctacagtacg aaaacttcaa gcccctgctg	420
tccgagagtc tggctcacgg cagtacaacc tcctcgtcgg cgatgccaaa cagagtatat	480
accgcttccg aatgccgacc ggcgctctgct cacagaggtc gtcagtcggg attttgccga	540
acatcggaga gggtaaatct accatataat tggcgaagca ctcccgaata atcgagtta	600
acaactccct ctacaagcat ctgccacaaa tccttctgtg aggctatgac tcgcgaagcc	660
gagacgatgg caatgcccga tcctaattgc cggaggagat caaccgtaca ttcatgcaga	720
cctatgccga tgtgggcagc ttgtgccacc ggctaaaagta gaccggcatg gaagcgtctg	780
cattatcttc cgtcgccggc atcatcagaa gaagcgggaag ccaatctttc gtggaggagc	840
agatccttgca ggatcttccc cgttttatca tcggtctgca aaaagagggt atgctccttc	900
ggatattgct attctcgtgc gcaaaactta taggctcgcg agatagctcg tgccatgctc	960
tcttatcaac ccgaaccgga gaagaggact atccccttat cccgatgtcg gacgaatctt	1020
tgtcgctgat ggagcagcat caattcggtt tctatcgaac ctactcaagt ttatatccgc	1080
ccccaatccg atgctttgcg acagatcgcc tacctgtc	1118

(2) INFORMATION FOR SEQ ID NO:363

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 659 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:369

tgtaacccgg	ccttccgaat	ccgaccaagt	aagatgttgc	catcggggcc	gtcgaagggt	60
accacatttt	cggtcctggt	tcgggcttgt	cttccgtata	gttgagcag	tggcttcggg	120
ttggcgctgc	tgctccccga	tactcgggtga	ggtgggacag	aggactgtga	tggagcaacg	180
gatggctgct	ctttggcgga	gccggccggg	gagataccga	tccgctcacc	acgggatttg	240
cgtgcgtgct	ccatgggtcg	gaggcggagc	agtcagtccc	ttgctaaata	aagcgcgata	300
ttcatcagcg	acaactccaa	caacagacgc	ttgccattgc	tctgcgatac	tgctggtcac	360
aggcattcag	tatcttgagc	gattggtata	agaagaagtc	gggcaacgtg	ctgccatata	420
cacatatcgc	tgatatgacta	ctcggactgc	tccaacagcg	gcaaggtaga	agcgtcctga	480
gccatcatca	atcgcggaag	aaagaagcca	atccgctcac	gatcacctgt	ccgtcgaatc	540
cttggcaagc	aattcgtcca	acacgatcaa	tacggatcgg	taatcccctg	taaaaagaaa	600
tccgtcagac	ggaaataata	atcgtagtcg	aggatatcag	attctctatc	gtattggcat	660
aggtaatat	gccttccgaa	aaacggcaat	gcggtcgaag	agcgaagag	catcgcgcac	720
ccctccatcg	gctttgtcgc	tattatagcc	aaagcttcgg	cttcggcttt	tatcccctcg	780
ctgttgctac	gtagcgcaaa	tggtgctcta	ttcgggcccg	tggtattcgt	ttgagtcgaa	840
tatctgacca	gcgcgagaga	atagtgggca	ggatctttgt	gctctctgtg	gtagccaata	900
taaagatcac	ataagaaggc	gggtctt				927

(2) INFORMATION FOR SEQ ID NO:370

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 420 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...420

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:370

ggcaaagtc	atcttcaccc	actccggtcc	catatgtctg	aaacgtcgaa	ccccatgttc	60
gccttaagtt	gccccaaagat	cgcctcgggt	tcaatacacg	tcgcttgcg	tgcaacaagac	120
cttactccga	gttgagccga	tccttagctg	cgctttgtag	ttgttgagac	gatgattcac	180
ttcgatgata	ctattaccat	agcctgtctc	tctgctaatt	cccgaatctt	ttatggatga	240
tatcttctga	ccacagtaca	cgtctgactc	atcgatccga	accaaaaatg	caccatttta	300
gttcgaattt	tctgaaaaaa	tggaacgaga	tttttttcgt	tgtgcgtgag	aattttttgc	360
tttccgcgcc	aaacaaaaaa	agttcccacg	cctggttttt	aggaaagtgc	aaaacgggaa	

(2) INFORMATION FOR SEQ ID NO:371

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1341 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1119 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1119

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:368

caagttgttg	cacgatgcct	atgcaaaagc	tttagagctt	cgnaagttgg	ttccggacag	60
gaggtcgaaa	atgtcggttaa	gactatctat	aagcctttac	ggccgagaga	tttcagccaa	120
gatggtagag	ctattgaagc	cggaaggggtg	cgtgccaaagg	tggagatcgt	atatcaaagt	180
ttggaaggct	tgcacgggcg	ataccgaatc	atccggggaga	ctgggtatttc	tccggcgatt	240
atccgcaccc	ggaggcgctc	atcttggtaaa	tgaagctttt	atcagctaca	tggagaggac	300
tatggcaaat	aattattttcc	agaatcgaaa	gagtattaag	aactatgaga	gagcaaagaa	360
aagcgacatt	gatattggac	gatggtagcc	gttcgaaggc	tattcttttcg	gttgcgaaacg	420
tgctgtggcc	ggagaggtcg	tttcaatacg	gctatgaccg	gctatgtgga	gagtctgacg	480
gatccgagtt	tcgcggacaa	atcatgggtta	tgacctatcc	tttgggtgggt	aattatggct	540
tccgatgaaa	gcagctgagc	caaacggcgt	atcttgcttt	atggaaagga	cagaatacac	600
atggaaggaa	tcgttgtgtc	cgactattcc	cattctttag	tcattggaat	gctgtcgaaa	660
gccttggcga	ttggctcaaa	cgtgagaggt	attcgggtctg	acggggatcg	acacgagggc	720
attggccaag	cacctcgcg	acacgggttcg	atgaaaggaa	agataattct	cgaaggaggc	780
gaagcattgg	cttcgccgat	ccttacacag	tcaatcaggt	agcggaggct	tctgtcgtga	840
agtaatcgtc	tacggcactg	gaagcaaaaa	ggtggtactc	gtgattgtgg	agtgaaggac	900
aacattattc	gctcgcttct	ccgtgaagat	aaacgctcta	ccgtgtacca	tgggattacg	960
actttcatcg	aatagcatac	acggtctctt	catcagcaac	ggcccgggcg	acccaatat	1020
gtgcagcgta	cagtggaaca	tattcgtcgg	gctgtggccg	gcgacaaacc	tatctgcgta	1080
tttgcattggg	caatcagctt	ttggcgaaag	ctgccggggg			1119

(2) INFORMATION FOR SEQ ID NO:369

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 927 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...927

ggcaaagctg	gaggagctat	ctgcatctct	cccgatcggt	gaggggctgc	ttcgttgatg	60
cgcaaattca	aggagcaagg	tattcgctct	gccattattc	gggaggattc	cgactttatt	120
cgcacaacat	caaagagcgg	tacggctcga	ctacatctgc	acatcggagg	cagagggtgga	180
aaatggcctg	ctgacagtcg	tctatcgggt	accatagttg	atgcgaaggt	caaagccgaa	240
tttctcgctc	cctggccaag	gagctatccc	tcacccctgc	cgaaataatt	gccgaggcga	300
tggagccaat	gatgtaccca	tgcttgactt	ctcggccggc	agctcatatt	caacagttcg	360
gcacatccgc	cttccatgcc	tcaactacgc	atgaagccat	tctccaattc	atgggttgcc	420
gatagtcgcc	gacccgatcc	gatagaataa	gaacctccgt	gctaagagaa	atztatcgta	480
cggagggtatg	tttttggcgg	aaatatattt	actttgggat	agaagagtag	accataaga	540
gcttgaatac	gatgcgatcg	tatccgaagg	gcatgcgaaa	tatagatcgg	aaagggtgcc	600
gtattctttg	gttttgcgag	cttctttttt	gactttccgt	ggagtttttc	ccctgatgta	660
tggccgaaga	ggaagcattc	gtgcctttca	gggcataggg	acaaaatttt	taagaatata	720
attatcagat	ttatccaatg	aaagtaggtt	tgttcatccc	ctgttatgtc	aatgcagtgt	780
atccgaagtg	ggtatcgcca	cgtacaaact	gctgaagagt	ttggacatag	atgcgactac	840
ccgatggatc	agacatgttg	cggccagcc				869

(2) INFORMATION FOR SEQ ID NO:373

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 703 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...703

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:373

gtcgttactg	tttgcaggat	actctcccta	tcgtatctct	ctattgatta	gagtgcgttc	60
cgagaatgag	tttaaatctat	ttttcgtggg	gcaagataga	atttttcaat	tccagcagtc	120
tttccccctct	tctttctgcc	tttcagccga	gagcctcgaa	acaggcaaaa	ggataaagga	180
tgcgcgacga	agtatcctac	aaagttccag	aaaatgatca	ccgtcggggac	tgcatatcga	240
atagcgaccc	tgtgcgctta	taacgggatca	gacgagcaaa	aagataaagg	gtacgaacaa	300
aggaccgaaa	gcaacgacgt	aggccacagg	gtgcctatcc	cccaataaag	cattgtcata	360
gacaaacagc	aagaggagat	agcacgtcca	taaacgggat	ttgctccata	aagggtggtga	420
cagccacatt	gcgaacgaca	gcatgaaaga	gcgaatctgc	tcacagcgga	gcacgtgtcg	480
ttgtacccaa	tgaagagatt	gcatcccgtg	cgggagctga	gcagatagcc	aatcatcacg	540
ccaaggaacc	ctcaccggat	ggcataatga	atatgcaaga	gaagaaaaaa	accgtgaatt	600
tgtagtttgt	gactaagaga	cttcccggcc	tttctacttc	gctctgtccg	aatgcccattg	660
aaccactctg	ctacagccgg	atggcctagg	cagggatgaa	ttc		703

(2) INFORMATION FOR SEQ ID NO:374

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 647 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1341
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:371

ccaaatgaat	tcatatatga	atttctccaa	ctattttctat	ttctcttcag	gttcagtaaa	60
tatcttctat	gcaaaaggcg	tatttttagtt	cgcaaagtac	tcattttataa	taagaaaaggc	120
aaataaaacg	gcaagaaaac	gcctcttcga	gcataaaaat	gtcgcaagag	gtgtatgtgg	180
taatcagggt	acataaacag	ggcaaactcc	acctttcgtc	gtttgacgag	acctctgagg	240
actttccctt	gtatcggcag	aaagagacaa	attcacgata	gaaattcctg	tcgccgactc	300
tatcttccgc	aacagtcggc	tcttgggatg	cttgccgat	ccggcaacct	gcctgtccccg	360
acattgtagg	aaaggacggc	aagcagaaga	acgttccatt	taaaacatct	gaagataggg	420
atttacaata	gcttcctaaa	ttcatctccg	ccaatctggt	gatttcatcc	ttgtagattt	480
caaggtgatg	aggatgatgt	tctccacata	gataccgatg	gtcatatccc	tgtttctcac	540
gacatgacta	tctccgccaa	cgtgtcttgc	aactcttttg	caatatagtg	gtcttgcgat	600
ttttcaaggt	gttgcgacag	atgaaaagcg	actcatatca	cctttatcag	cctttcgcct	660
ttctcttctt	gggactcttg	aaaaatcttt	gacattgggt	cttcatttgg	acgttccgat	720
tcaacacact	gctctctaata	tgagagcggt	ttatttcgct	ctcattttctt	ttcatgggaa	780
tacctgtgaa	acaagttccc	ggatggcaac	aggatctacc	ttgccgtttt	ggtctctgtc	840
atactttctt	aattttttatt	attacacaat	tcattgttca	ttcgttgcca	gtatatattac	900
cgatgaagat	gaatacatcc	gctatcgaag	aatgcccaat	aatcggcttg	taccagtagg	960
gctacatcct	ttcattcata	cctttctgtt	ggagatgttc	attagtgtcc	atcaatacaa	1020
tcgttcgatg	tatctgcctt	cgcacattcc	cacgttcgag	tgnaaagaat	caanggactg	1080
ttctttgaca	tacaccctcg	cctatatcgc	tcatcgaaac	gtgatgtatc	gaagacacat	1140
accatcaccg	acatatcga	cagtgcgaat	atatggtcgg	tgatgctgta	atcagcgtga	1200
tttccttttag	tgcgtaactt	tggcacgatt	tggataattg	tggcttcggt	ctacctaata	1260
gctttgggta	caaggatcgt	aactttgcag	taagcgataa	gtcgggtattt	catggccttg	1320
gaacatacat	ttcgagagaa	t				1341

(2) INFORMATION FOR SEQ ID NO:372

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 869 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...869
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:372

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:377

```
ggctgtgttg tccggctgtc ctgtcttttt gaatttgacc atgatgaaga ttccgggtcgc      60
ttctccgggtg tggagagtgt ccatttggtta tagtaagata gaaatggata gaattggcag      120
gtgccgactc tgcaatatca agatattcga tgtcttatag gatgcagcag ctgggatctc      180
ttgagcttct gtggtaggaa ccccttcgtt accgaattgc gaaactttgc ctgtatatatt      240
ccgacacttc atatccttgc acattgatgg tgggttttat catgcgaatc tttgtgccac      300
tcgtttgagt ttataatccc ccaacagttt cccttctgtc gtaccatatt gatctgctta      360
ttgccatgag caagcattac gaaatcggca gggctgtcgt agaagagact tcaatagatt      420
tctctaccac aaattgagaa acgcagcttc tgtggccgga gcattgaaat cgagattggc      480
cactacatag tgctgaagtt gttgttgcca ttgaatagtg gtcgcatttg ctctttgacg      540
gaatgatata ngcccccttca tggatttgat agtc      574
```

(2) INFORMATION FOR SEQ ID NO:378

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 384 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...384

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:378

```
gggaaggcgt aatgaagaaa gaaattcttt cagcagatta caaaggcgag ttgttcgtca      60
ttctgtagct gattatgtca aagccgaaga cttcgctgaa acattattga gcgtcatata      120
gaagcaagca aatccaacct caaggctcac ccattgtcgt tgccgggtggc tacggagtcg      180
gaagcaagga aaatttgccc tcttgcatga tcttgcatct gtattgggtg gagaagttgg      240
agctttcgtg ctgcggtaga tgctggtttt gccgatcatg acatgcaaat cggaagacag      300
gcattaccgt tcgtcccaag ctctatatcg cttgcggngt cagggacaaa tccagcacat      360
cgccggtatg ccaggganag ctct      384
```

(2) INFORMATION FOR SEQ ID NO:379

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1134 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...647

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:374

agatcccttt	gaatcattga	gactctcttt	gaaagggtcca	ctctagaggt	ccccagccca	60
aataatttatt	gttctgtcca	gaaattggaa	gagatgaaac	aatcctttat	gtactaaatg	120
acaagatata	tgtttacaga	gttgacacaat	gaaagaatac	gagttgagcg	attattttta	180
acacttcctt	cgttgaattg	tagtatacct	caaaggaggg	gattgttcga	ggttgcgcta	240
ttttggactt	tatatgtttt	tactctgcct	caaaaaaaaa	agaatcaggt	ggtttggtgc	300
tgcagtcgta	tacgaaagct	agaagttgaa	taccacgcag	gaataacgaa	aaaatcaaaa	360
acaacacaaa	aaaacagaat	cggggactag	agcgggggca	tagggaatgg	ttattttccc	420
actcatgggg	atttcctgcg	caaaagctat	atctttgnaa	atggaaccaa	tcagcgtgga	480
aggatttgta	tgcttgcaac	ccacgagaaa	aaaatgctaa	aacatttctt	cttagaaaagt	540
ctttcgacag	ctattctcca	atgggagtg	gcaagccctt	ctgtgcgagg	aagtttacca	600
attaaaagca	taaagatatg	agctatctat	tcacattgaa	atcggtg		647

(2) INFORMATION FOR SEQ ID NO:375

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 486 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...486

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:375

ccccgggaat	aggcggattt	tcgccggcta	tcgtactgta	tctgctgatg	ctatcgtagc	60
caagcgtaca	ggctgcgagc	agaagtgaag	ctaaaatctg	ctccgctctc	ctttcctctc	120
ttcttcatca	caaccaaaaa	gcacatata	atatggaact	aataggcact	ttttttctta	180
tcctgcta	ctattggtaa	tccgatttct	gattcgggatg	ttcgccattc	gtcagatggt	240
tttcgacaga	agaagaactc	ttcacgacaa	ggaacagaaa	cctcaaaaaa	ccctctccgg	300
gtgaaaaagt	cgaactcgac	gaacttgaaa	agcgaaaatt	tgaaaagacc	aaggagaata	360
ccgtagactt	cgaagacata	aaggacaaga	gcgatgcang	aaccggatgg	atccatatat	420
tcagcagact	cggatccttt	tctccgatat	caccctgtcc	gcttggatac	cggatccgac	480
atataa						486

tggaacgaagc	ccgccacaag	catccgtgat	gctgtcccaa	tcgtctgcac	agatagagaa	240
atcaaccgcg	acatcaaaga	ggcacaagcc	gaaaggaggaga	aaacgcggag	agcagacagg	300
agctgaacga	cttcagggaa	acgatcaaca	aagaagagat	cgaagaagaag	agcgaatcaa	360
tcgggagata	gagaaaaataa	aacggaggaa	aaacgggaagc	aggagaaagc	agcaagccgt	420
tcggccgaaa	cacctgtaca	gcaaagctgc	aagaagtgcc	ccaacccccct	gtcatacaag	480
tgggcgatac	gtacgaatca	aaggacagac	ggctataggc	agtattatag	atatgaatgt	540
cgggaggcta	ccattgctct	cggaatgatac	aaaacgactg	tgccgatcat	cggttggaac	600
cggccaagcc	cgtcaaggag	cgggaagtctg	agcctgttcc	ggggcatctg	cccgaatgat	660
catagaccgg	atccacgaga	agcgttggat	ttcaagcaag	acatcgattt	gcgtggcatg	720
cgtgtgaacg	aagcctccaa	gccgtcatgt	attttatcga	tgatgccatc	caactgggaa	780
tacccgcgta	cggatacttc	atggaacggg	aacagggtgca	ctcagaacgg	tgacagggag	840
tatttgcca	cagtcaatgg	cgtgaaggcat	tttgcagacg	aaacgtccag	ttcggaggag	900
ccggcatcac	tgctgttgaa	ttgggatgat	actttcgata	cgatcccaaa	tggctgaaat	960
catctgc						967

(2) INFORMATION FOR SEQ ID NO:381

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 494 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...494

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:381

aggatccccg	cccacaggcc	gtatttgctt	acttgtat	ataatcatca	gacaatccta	60
ccatataagt	gaacagcgaa	ttagtaattg	acgttaagcc	aaagaggat	ctatggccgt	120
cctggaggat	ggcaaaactcg	tggagctcaa	cgcgaaccgc	gcaatctttc	ttttgcagt	180
ggggatattt	acctcgtaaa	gtgaagaagg	tgatgcccg	tctgaacgct	gctttcgtgg	240
atgtagatac	aagaaggacg	catttcttca	ttatcttgat	ttgggcttga	ctttgatgct	300
cagcagaaga	tgatggagat	gatgacaaaa	agcaaatcga	ttcatccttg	tccaaagtgc	360
ccctcggcag	cgacctccct	aaagagggga	agtcgcagat	gtgctcaagg	ccggacagca	420
gatcttggtg	cagatagcca	agagccgatac	tctaccaaag	gcccacgcct	gactgccgag	480
ctttcttttg	ggcc					494

(2) INFORMATION FOR SEQ ID NO:382

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 637 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:377

ggctgtgttg	tccggctgtc	ctgtcttttt	gaatttgacc	atgatgaaga	ttccggtcgc	60
ttctccggtg	tggagagtgt	ccatttggtta	tagtaagata	gaaatggata	gaattggcag	120
gtgccgactc	tgcaatatca	agatattcga	tgtcttatag	gatgcagcag	ctgggatctc	180
ttgagcttct	gtggtaggaa	ccccttcggt	accgaattgc	gaaactttgc	ctgtatatatt	240
ccgacacttc	atatccttgc	acattgatgg	tgggttttat	catgcgaatc	tttgtgccac	300
tcgtttgagt	ttataatccc	ccaacagttt	cccttctgtc	gtaccatatt	gatctgctta	360
ttgccatgag	caagcattac	gaaatcggca	gggctgtcgt	agaagagact	tcaatagatt	420
tctctaccac	aaattgagaa	acgcagcttc	tgtggccgga	gcattgaaat	cgagattggc	480
cactacatag	tgctgaagtt	gttggttgcca	ttgaatagtg	gtcgcatttg	ctctttgacg	540
gaatgatata	ngccccttca	tggatttgat	agtc			574

(2) INFORMATION FOR SEQ ID NO:378

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 384 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...384

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:378

gggaaggcgt	aatgaagaaa	gaaattcttt	cagcagatta	caaaggcgag	ttgttcgtca	60
ttctgtagct	gattatgtca	aagccgaaga	cttcgctgaa	acattattga	gcgtcatata	120
gaagcaagca	aatccaacct	caaggctcac	ccattgtcgt	tgccggtggc	tacggagtcg	180
gaagcaagga	aaatttgccc	tcttgcatga	tcttgcatct	gtattgggtg	gagaagttgg	240
agctttcgtg	ctgcggtaga	tgctggtttt	gccgatcatg	acatgcaaat	cggaagacag	300
gcattaccgt	tcgtcccaag	ctctatatcg	cttgcgngt	cagggacaaa	tccagcacat	360
cgccggtatg	ccaggganag	ctct				384

(2) INFORMATION FOR SEQ ID NO:379

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1134 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

ctccccgataa	agaaaaacacg	agcggcaaga	ccaaaaaaaac	ggaactgaaa	aatccgaaat	960
agtcgttcgg	tgatcaaaaa	ttctcgctcg	tctttttttc	gcttttggtt	cgagatttgg	1020
aaaaaagaca	accgtaaatac	cgaaatcatg	gcgcgagttt	ttccccgattt	ttcgttcggt	1080
tttgtctgtt	gcgactgctc	tatcagtagc	cgataacaga	ttttatccaa	atgggtattc	1140
ggagttttgt	atcg					1154

(2) INFORMATION FOR SEQ ID NO:384

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1169 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1169

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:384

ttcgccactt	gacatcacgc	gtaatcgaag	gattatcact	cttacgggca	tcttgtctat	60
ctcatcgata	aagacaatcc	ctctctcggc	ctgtttgaat	cgtagtctgc	ggcctgcaaa	120
agtctggtga	gaatactctc	aatgtctccc	ccacatagcc	ggcttcggtc	agtaccgtag	180
cgtcgactac	ggcgaaggaa	catggagcat	tttggctatc	gtacgagcca	agagtgtctt	240
gccgggtccc	tgggaccgac	cataataata	ttgcttttct	cgatctctac	gccacgctgt	300
cctcttgctg	gagcaatcgt	ttgtaatgat	tgtatacagc	gacgaaagaa	aacgtttggc	360
atcatcctgc	ccgataacat	acgaatcgag	aattccttga	tctctatagg	ccgaggcaag	420
tcctctctct	tcagattggt	ctctcttccg	atttgaattt	ttgcaatgct	tctcgaacca	480
cctctcctgc	cggagagcac	attcatcgca	gatatgagca	tggactcctt	cgagcatcag	540
tttacctgcg	ttctcggcat	gccacaaaaa	ctacagtatt	cttcgctcct	ttctttgcc	600
tgagaaatat	acagtccccc	tttgggtaac	gagagggtac	tttcgattct	tttcgaggat	660
tttatctatc	atcccgtact	ccaatgttcg	ggggctgtca	tccaatagtc	ccgataccta	720
tctttttcga	cctgccgacg	ggctttccac	tgtgagaaga	gataatcgtg	taaagctctt	780
tcttacgcgc	agaatctcgc	gagctgcgat	ctccaaatcg	ctggcctgcc	cctcatacca	840
ccaagcggct	gatgtatcat	cacgcgggaa	tgaggcaaa	caagcgtttg	cctttcgttc	900
ctgctacgag	cagcactgat	gccatagacg	cgccatgccc	gtacagatag	tggccacatc	960
gcacctata	tactgcatcg	atcgtatatg	ccataaccgg	cataaacaga	tccgccgggt	1020
gaattcagaa	gatggaaata	tctttaccgg	ggtcggcgct	atcaagataa	agaagctggc	1080
ttgaatgaca	ttggccgtgt	aatcgctcgat	ctgagtgcca	aggaagagat	ccgatccatc	1140
attagacgtg	agaacacatc	catttgtgc				1169

(2) INFORMATION FOR SEQ ID NO:385

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2717 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

tggacgaagc	ccgccacaag	catccgtgat	gctgtcccaa	tcgtctgcac	agatagagaa	240
atcaaccgcg	acatcaaaga	ggcacaagcc	gaaaggggaga	aaacgcggag	agcagacagg	300
agctgaacga	cttcagggaa	acgatcaaca	aagaagagat	cgaaaagaag	agcgaatcaa	360
tcgggagata	gagaaaataa	aacggaggaa	aaacgggaagc	aggagaaagc	agcaagccgt	420
tcggccgaaa	cacctgtaca	gcaaagctgc	aagaagtgcc	ccaacccccct	gtcatacaag	480
tgggcgatac	gtacgaatca	aaggacagac	ggctataggc	agtattatag	atatgaatgt	540
cgggaggcta	ccattgctct	cggaatgatc	aaaacgactg	tgccgatcat	cggttggaac	600
cggccaagcc	cgtcaaggag	cggaagtctg	agcctgttcc	ggggcatctg	cccgaatgat	660
catagaccgg	atccacgaga	agcgttggat	ttcaagcaag	acatcgattt	gcgtggcatg	720
cgtgtgaacg	aagcctccaa	gccgtcatgt	attttatcga	tgatgccatc	caactgggaa	780
taccgcgta	cggatacttc	atggaacggg	aacagggtgca	ctcagaacgg	tgacagggag	840
tatttgcca	cagtcaatgg	cgtgaaggcat	tttgcagacg	aaacgtccag	ttcggaggag	900
ccggcatcac	tgtcgttgaa	ttgggatgat	actttcgata	cgatcccaaa	tggctgaaat	960
catctgc						967

(2) INFORMATION FOR SEQ ID NO:381

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 494 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...494

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:381

aggatccccg	cccacaggcc	gtatttgctt	acttgtattt	ataatcatca	gacaatccta	60
ccatataagt	gaacagcgaa	ttagtaattg	acgttaagcc	aaagagggtat	ctatggccgt	120
cctggaggat	ggcaaactcg	tggagctcaa	cgcgaaaccgc	gcaatctttc	ttttgcagtg	180
ggggatattt	acctcgtaaa	gtgaagaagg	tgatgcccgg	tctgaacgct	gctttcgtgg	240
atgtagatac	aagaaggacg	catttcttca	ttatcttgat	ttgggcttga	ctttgatgct	300
cagcagaaga	tgatggagat	gatgacaaaa	agcaaatcga	ttcatccttg	tccaaaagtgc	360
ccctcggcag	cgacctccct	aaagagggga	agtcgcagat	gtgctcaagg	ccggacagca	420
gatcttgggtg	cagatagcca	agagccgatc	tctaccaaag	gcccacgcct	gactgccgag	480
ctttcttttg	ggcc					494

(2) INFORMATION FOR SEQ ID NO:382

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 637 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 522 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...522

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:386

ggccaaatcc	tgctgtacga	tcttttcatt	tttcgcagcc	agttcggccg	aagagacgaa	60
atttcgtttt	gctgcttttc	caccagctcc	atcagcttcg	gacgttatac	tccagcttcg	120
aaagatcgag	ttcctcttct	ccggtcaaga	ataatccttt	tccttacaaa	agtaaattat	180
ccgcgcaaaa	ctggcactaa	ttttgtgtac	ttgtataaag	agtaaataag	acagtcatta	240
cggagaaaaa	gatttggtta	ttttgtctt	cacagaaagg	ctgctctgca	taatgcttct	300
ctatattcaa	ggagccggta	atgaattgaa	aaagagaaga	ttgatagaat	tgcaaaacat	360
agaaatgcta	ccactcatga	cccaccgcct	caatcaatcg	gaatatcctc	ttcgatcgga	420
tatgctgcag	cgatagacct	catcccggtc	gggattgtag	agaacgaatc	catcagatat	480
gcaaatcata	atcgaccgat	agcatcatag	cataggacaa	gc		522

(2) INFORMATION FOR SEQ ID NO:387

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 399 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...399

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:387

ggcataaacc	tccagcatcc	gtctggcttc	ttcttcggct	tcctcttttt	agcatgagcc	60
gtatgccctt	cttgccaaag	gaattcggct	gtccggagaa	aagacgtgta	cgcatttccc	120
atcgaactac	attggccac	tgattgcgag	gataggcaga	tcacgggtggc	tttgtatcca	180
gttcttatat	gtattcaaat	gatggctctc	gatgtcggac	gtacgatcag	ctcttcttcc	240
aacttgcttg	cggatccact	actacgccgt	ctccatcggg	attggctttg	agccatagtg	300
agttaccacg	gcgcattcct	tagcaaagcc	ttccacatgt	ntcttccacg	gctcaggang	360

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2717

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:385

ggcgcatggt	tttataccaa	tggatagtag	aagcagggat	gattcggtat	cgtgccagta	60
gaattacaga	tcctttccat	gcgattcttc	atgcttatcg	tatgctgac	ggacacaaaag	120
aagatgaagg	ggggcactta	gaggataaaag	ggaggggatt	tgtagggcg	gatttcaaaa	180
aaataagggc	tatctccgac	agcccttact	tccttattaa	ccttaaaatc	taataccatg	240
aaaaaactgt	acaaaaataa	ggcgtatgtat	ttctcgtgca	actatattag	gccaaaaggc	300
gcatattagt	ccaatcaata	tttgttttcg	gccttatact	cttttttctc	ccatattcga	360
acggggatca	tacgccagaa	agcgaccagt	aacgatagcg	ccagtcgaaa	gtcagcagtc	420
tttttcgacg	gatgacagcc	ttactattgc	ttgggcaact	atcttggact	ccatcagcat	480
tggatactta	cgtctcgtag	caggggggta	tcgacaaaatc	cgggacgaat	ctccgtaacg	540
tcaggtgtag	gctgtctgtc	gtggccaatt	ggcgtatgga	ttggagatgt	gcatttggaa	600
gcgtttggtg	gcggagtagg	caggagcgga	tcccattctc	ttgttgctgc	taccgaactg	660
atggctacta	tttgaccctt	tttccgaggc	gaaaatagcg	gtaggcggca	ccgatcattc	720
gggtaaatcc	ttctcattgg	tacggagggt	gtccagctct	ttcgtttcgt	ccagttgcgg	780
attgtataac	cgataccgga	cgagtggaa	tatacatcca	taccgctcat	ttctcgatga	840
ggtgggacag	ccgttcagga	gcatcggaa	gcgtgatgtc	tatacggctg	tataaacctg	900
tgagggtattc	tcctgcttca	atgcattcag	ctttgggtat	tgcgggcggc	aacacctacg	960
aaccaaccgc	gagagataaa	aggcgggcta	catcaagccc	gatgccagag	gtggctccta	1020
cgacaacgat	cgtttggttt	ccatgatttc	ctgttatgaa	atgaagtcca	tcccacgaga	1080
attttcgctt	cttctgtcgt	agctcctacg	acagtgaag	ccttcattca	cgtgggtgcg	1140
ggtaggcttt	gcgttggtct	tcgaatgtct	tcggcggtgc	cttagcgatc	gatccggtac	1200
gagcggatcg	aagggtatgca	gcaaaccctt	tcgatacgat	ggtcggggaa	gagcgacaga	1260
tctatgatgg	gatggtcggt	gggggagggg	ctaaagtatg	cagcagggga	aattccagtc	1320
cgatacttcc	gtaatggctt	caaggcacat	tctggctcca	ttggcttttc	cgctgcagag	1380
aatcctgcta	tgtgaggagt	cgcgatgtct	gccaaatcca	aaggctgagg	tctatatcgg	1440
gttctccttc	ccagcaatct	attacgagg	ttggagccat	ccgcttttga	cagcccgaat	1500
aagagcttgg	ggtatccgctc	ggctcctcgg	caggcattga	tcaggatagg	ccttttgtct	1560
gcacagctcg	tagaaaagcc	tcaccgatga	ggtgataggt	ggcgtgagg	tcttcatggt	1620
gaggggaacg	tggaatgaga	taatgtcgca	ctgctccacc	agtcggttag	aggaagaaag	1680
ctattgtcct	gctctgcctc	cgaccgaggt	ggatccagag	caggaactcc	atgccatagg	1740
cggaggccaa	acgcttcagc	tcacgcctac	atggcctaca	cccactatac	ccattacctt	1800
ctctttcagg	gaaaaccctc	gcgcaaagcc	agacgacaca	ggcagcacat	tacatactgc	1860
gcacggccgt	agcattgcag	ccgggggaat	tgcgccagag	gataccgtgg	cttcgcagta	1920
ttcgcggtcg	atgtggtcga	atccggccgt	ggcagtcgtt	tcaaccgcac	atcagtacct	1980
tgcagaagag	ccggtgtgca	cttgggtgatc	tgcggacgat	cagcaccggg	gcatgacgta	2040
tcgtatcggg	agagaagcgt	ccgagtgtag	gtaagtaatg	tccgcaacag	gacgacaat	2100
acctctcaat	agggcacgga	tgcttctgcc	actattttga	gaggaccgga	tagagagaaa	2160
gcatttctta	ggcttcgcct	tttattttgg	ttgggaatgt	aaatgggcat	ccgatacgcg	2220
ttgctcggtg	tggatctcgc	cgtgttccac	ttcgagcgat	ggatattgtc	cgagagagtg	2280
gtcaaaagtc	ttttggcatt	gtcggagtca	ggatgatgcg	attttggact	cgtgcggtgt	2340
cacgattcgg	aacatacgga	tgaagtccaa	gacaaattcg	ctcggagagt	gcatcacgat	2400
aagagattgc	agtagttgcc	ctgagctatt	tcttcgggca	gttcgatgtt	attgttttgc	2460
tttcgttttc	catttggtct	tgaatgtttt	aataagtaga	tgagggaag	tgccaagctg	2520
aataacgtat	ggcaccgtta	ccccctttga	acaaagttac	tcctttcgtc	taaatgtgaa	2580
taagggttca	cgtgccagag	tgaattattt	gcgggttcgaa	ttacggataa	tgctcttttc	2640
ccatccgtac	aaatataccc	tgtacgaaat	acgctctttt	tgccgaggca	tacttgtaca	2700
gggtaagtaa	gcatgtc					2717

(2) INFORMATION FOR SEQ ID NO:386

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...346

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:389

```
cgccttagag aaagtgtcca tcgctaaggc ggtgccaaat taccattttc gaacaccgag      60
ccaaaaaagt ctctaatacg gtgccaatca caactttgat actagagaaa aagctcggca      120
aataggctat cgactcatcc gaaaaattgc ataacaatcg caagctccga aagccttatg      180
gcgaaccaac aaaaacaaga cagccacctc gtttgcaaag cgaacaaagt ggctgtccta      240
tatgttgtag ggctatggaa accccttata ctcanagaac gggaatcgac gaagcngccg      300
ggctataatc tgcgtcttcn aagtgtactt ctctgtgaac gttcan                       346
```

(2) INFORMATION FOR SEQ ID NO:390

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 474 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:390

```
tgatgtccgt gatgatgtgc ctcatgttca tgtttgtgct ccgagcaacg gcgtgggcgt      60
gagattgttt tgtttccata gatttgtctc ctacacatat gatctgatgt ttttgttttg      120
acggcgtgtc ataatgagca atttgctcgt tgcctgcgac attcggcttc agtcacgtac      180
ttcagtacgt tccttttagac tctgttttag cacctttgtg ctccaaaaga attttgacac      240
tgctcatctt tattgcaaat gtcatcattt tgtcgacatt ttaccatat atttgccgtt      300
tcaaaaagta taacccttga tttcaggaaa ttcacatgcg ggctaaagat cgagaaatga      360
gccgagaatt cggtttgtag gtaattaatc ggcagcctac ggtgtccttt ctgtcgtgga      420
ttcggacggt gcaccctatg cttgcctctt ttcacgtgac gcgatgggga gaat           474
```

(2) INFORMATION FOR SEQ ID NO:391

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 514 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...346

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:389

cgcccttagag aaagtgtcca tcgctaaggc ggtgccaaat taccattttc gaacaccgag	60
ccaaaaaagt ctctaatacg gtgccaatca caactttgat actagagaaa aagctcggca	120
aataggctat cgactcatcc gaaaaattgc ataacaatcg caagctccga aagccttatg	180
gcgaaccaac aaaaacaaga cagccacctc gtttgcaaag cgaacaaagt ggctgtccta	240
tatgttgacg ggctatggaa accccttatc ctcanagaac gggaatcgac gaagcngccg	300
ggctataatc tgcgtcttcn aagtgtactt ctctgtgaac gttcan	346

(2) INFORMATION FOR SEQ ID NO:390

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 474 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:390

tgatgtccgt gatgatgtgc ctcatgttca tgtttgtgct ccgagcaacg gcgtgggcgt	60
gagattgttt tgtttccata gatttgtctc ctacacatat gatctgatgt ttttgttttg	120
acggcgtgtc ataatgagca atttgctcgt tgcctgcgac attcggcttc agtcacgtac	180
ttcagtagct tccttttagac tctgttttag cacctttgtg ctccaaaaga attttgacac	240
tgctcatctt tattgcaaatt gtcattcatt tgtcgacatt tttaccatat atttgccgtt	300
tcaaaaagta taacccttga tttcaggaaa ttcattcatgc ggctaaagat cgagaaatga	360
gccgagaatt cggtttgag gtaattaatc ggcagcctac ggtgtccttt ctgtcgtgga	420
ttcggacggt gcaccctatg cttgcctctt ttcattcgtgc gcgatgggga gaat	474

(2) INFORMATION FOR SEQ ID NO:391

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 514 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

cagggtcaagg	tcgcaacgaa	gtatgtttgg	gatctcgctc	tcaaatacgca	ttctgcgtaa	1080
tcgccaatat	cagttctgca	tcgatgagaa	gatgagccgt	cgctacaacc	cgaccgctac	1140
tatgccatcc	agaacatgcg	cagcggtagc	cgcaactgat	ccccctctgg	ctcttcggat	1200
tcctgtacta	aaaaaacagg	acaacaactg	tgaaagccga	tcggggcggt	cggcttgccc	1260
tcactttgct	ctgataccta	gtgagcagac	aaagaatatg	gacaaagccg	atgcatccgc	1320
aacaccgact	ctgtttcagg	gttgctatct	cagaatacaa	gaccgaaatt	atacttttta	1380
taactaaaaa	ccaaaatggc	taaagaaaaa	aaattcctaa	ctgtgacggg	aaccaagccg	1440
ctgcgcata	tgtttatatg	ttcagcgaag	ggctgccatt	tatccgatta	caccttcgtc	1500
tacaatggct	gagtattgtg	cgattgggct	gctgccggcc	gtaaaaacat	tttcggcgaa	1560
acggtaaggt	ccaggagatg	caaagtgaag	ccgggtgcagc	cggtgcagtt	cacggctgtt	1620
gcagggagga	gcactaacca	caacctttac	ggcatcacag	ggcctatgct	catgattccc	1680
aatatgtaca	aattgcggga	gagttgcta				1709

(2) INFORMATION FOR SEQ ID NO:393

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 463 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...463

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:393

gaaataacat	ttccaaatgg	agaactgatt	aaggacaaaa	agatccggag	gaagattata	60
agatgaaatt	caagaatcta	atctatactg	ttccagaaac	agaaagcacc	tatcttacca	120
aacaaaatct	ttcgatacaa	aaaagaagat	gagcctatgc	aaagatgagg	atcatgattt	180
gtgcgaagat	gatacgacga	acatcgaaa	cggatacacg	gtggcgtaga	ccacagaggc	240
tccgtacctt	tgagctggct	attcacatag	tcgagagcca	tcggattggc	cgtattccgc	300
atatcatacc	ggctgtgcc	tcgtacctgt	tgcggagcaa	cttatagaag	cccaaccgac	360
caatagcgta	ggaagcatcg	taatcaaaaa	gccgctccga	cccaaagcag	accgtcccca	420
tggataatgg	tatcaaagaa	atggctcact	ggccaatcca	gtc		463

(2) INFORMATION FOR SEQ ID NO:394

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:394

gcattacccc	ctttcagaaa	aaagtactcg	ctcggataga	taaccgacca	tcgaaataac	60
ctccgacatt	caattgatag	aacagtgacg	atgccggtaa	aagacaagcc	gctgctgtat	120
gctcaaatcg	aggtgggtgga	aacgtgctcg	gacttacgcc	ccatcccga	agctccgcga	180
taagagagag	aaaggacgga	gcacgtatgc	cctcaccctc	acgaatgaga	aatccatccg	240
ccgtaaacgg	taataaggac	gcggattgaa	tgtcatctta	gctcgtactt	ccagaatcgg	300
tgatgaggaa	ctatgcgagg	aagatcggga	tcggcattgc	tgaattcaga	atatcggtaa	360
tactgccacc	gaagagactc	cacgtctctc	cagcggcaaa	ggattgcgct	cggccagcat	420
cacgcttgtc	tccacattga	gttgggcaat	aggtcgatac	tattggtcag	acggacaaat	480
ttatcatcgt	gcgagttgtc	gggccttgtc	cgttgagcag	ctccatcadc	agatcggtcg	540
ttggtctatt	ctttcgcgcg	tgctgtacaa	atcgaaagag	cgatgtccgc	ggataattgc	600
aaaagccctc	tttgcggagg	agaatagtac	ag			632

(2) INFORMATION FOR SEQ ID NO:395

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 784 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:395

tgcgaatatg	aacaaagaaa	tcacttttga	taagctaccc	gaagcggtag	gtatctgacc	60
gaacagggtct	ccgccattaa	agaaatggta	tcagcattca	ccctcctgtg	cctgaagaaa	120
aatctctcat	aggcatagac	gaagcgtcgt	aattattcag	aaagctaaac	ctaccatcta	180
tgctttggta	cgcaaggaat	tgtccctgca	tataagcgtg	gcaagaaact	ctactttctac	240
aaagagagtt	actacaatgg	gtagagtctg	gacgaaaggg	tgcaactaca	gccaatcatn	300
tgaggagcaa	ctggccatga	tgctcaaga	ggtgcgtcgt	aaacgaaatc	tatcaagtaa	360
cgatgggcca	tggaagaaga	agctatcgtt	ccgaagtcct	tcttgacaaa	gcaatagagt	420
tgggcttgtc	gttcacgggt	tgacctttcc	tatcagcata	tttccctctg	agatacgaaa	480
catcattgca	aggtacatga	gtgccaaagg	tttcccatcg	attacatcgc	ctctgccatc	540
ttgtggcaat	tgctgtgggg	ataggaaata	ctcatcttgc	cgaactcaac	gcggctggca	600
ggaaagtacg	atgctctatg	tcgcattggg	cggacgtcag	ggacaaataa	gagtcatccg	660
ctaagctttg	cgatgaagcc	ttttctgatt	ttgactatca	ggaaaacaaa	ctatacgaac	720
gctcctatgc	cgaattgaca	acatcatgcg	tatgaatcgt	aaggagcgaa	tagagggagg	780
cttc						784

(2) INFORMATION FOR SEQ ID NO:396

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 984 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...984
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:396

tggaacacgg	gattctatcg	catcgccgta	ggagccggag	tgcctattcg	ctcgctgtga	60
tcgactatag	ctataaagaa	atgagcgtat	tcgagctgtc	acccctacgg	gcaatgaaga	120
agcggatatt	gcctacatca	gaagtcgtac	agggcatcac	aggcacggca	ccccgaaac	180
tttgcagaat	cagaaaatga	tcaaacacga	gagctctcag	ccattgagag	ttgctgtagc	240
tcaatccgga	tagactggga	ggataagcac	gccaatctac	gccgaatgga	gcgttggccg	300
aagaaacagc	cggtatggcg	gatgtcctct	tctttcccga	aatatgacta	cgggcttttc	360
gatgaacgta	caagctcttg	cggagccttt	cgagaggggcg	aaactatcat	gaagcctgaa	420
gagagtgact	gctcgtcatg	gttggctctg	tcggctacga	tggccgtacg	ggagaacggg	480
aaattctata	tcgtgcctat	ttcgtgacac	cgggaaggaga	ggtcttccat	caggacaagg	540
gcacctcttc	cgtgtagggg	gagagcatga	ggtgatgact	ccggcacaga	acgccggatc	600
ttcaactatc	gcggttggaa	gatcttcatc	attccctcta	tgatctgcgt	tttcccgtct	660
ggtgtaccaa	tacggatctg	gaatacatct	gctcgtctgc	atggccaact	ggcctgagcc	720
gcgtcgcgcc	gtctgcaaac	gctactccaa	gctcgtgccg	tggagaacta	tgcctatgtg	780
tgcgcatcaa	tcgggtgggg	gaggacggta	tcggctctgc	ctatacgggc	gatcggctat	840
cctttcgcct	cggggcgagt	atcttgccac	ttgtgcccga	agagaggaaa	aggtggctgt	900
accatacgct	cgataagggg	gcgatgcaac	gtttcgcgac	aagtcctgc	gtggatggat	960
atggactctt	cgtcatcaac	atga				984

(2) INFORMATION FOR SEQ ID NO:397

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 600 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...600
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:397 "

ggaagcagtt	ggaggacatg	cagggataag	ggctgtggaa	atgatgaaat	ccgctttgac	60
aagcggcttg	atgagaacac	gatgaagggtg	tattgtatga	ttatcatatt	attgaaaaag	120
tactcatcaa	ttcatcagaa	atttcatact	ccgacttcgg	tgggaaacgg	cagtggcatt	180
acaggcggaa	acggaaaggc	agaacacgct	gatataagca	gtagaaaagg	tagtcacggc	240
aagcctgcat	tctgtatttc	caagtatgca	gggggttcag	acattcgggt	gcagccaagt	300
atgccttcgg	agaaacaagt	ccaatcggca	gcaccgatgg	agagccgtgg	ggacttcaga	360
atacaaggga	aagaagtggc	tggggcaaatt	gccacgtggt	aagcacggta	cggatatttt	420
caaaagagaa	aataaccgtag	ccattagggg	atttttntca	cgcttcactc	cgtgtccgnt	480
gaaaatctcc	aataagccaa	cgggggttgca	ccccctctgga	cacccctgcc	gagcctgttg	540
catgaaggaa	cgggcaagct	gaaacaagtt	tcattttccc	tctcaccgta	aaatcaggaa	

600

(2) INFORMATION FOR SEQ ID NO:398

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:398

gggaacaagc	gagtttctcat	cacgggagca	acgggcttca	tggcgggctt	ctgggtcgatg	60
aagccctgcg	ccgtcaatat	gaagtgtggg	cggctgtggt	ccccacagcg	atcgctcacg	120
cctgacagac	agccggatcc	gatttgtgag	atcgactacc	gcgacccgtc	cgatattgct	180
cgcttggctg	ataagaagct	cccgaagggtg	aatnccgatg	gcacttggtt	atccacaacg	240
ccggttaacc	aaagctcgtg	acacctcgct	tttnagagag	atcaatgcag	agcaaccaag	300
cgttttctga	taggattaca	aggggcgaag	cactgccccg	aacctttgtc	ctgatgagca	360
gtatgggtag	ctatggagct	cctnccgacg	acgccaacca	ctttcctcct	cttccgtacc	420
caaacctacg	actgcctatg	ggagagcaag	ttgctggcgg	agcaatatgt	gcaaaccttt	480
gtacacaatac	ctataccata	atacaacca	caggagtcta	tggacctcat	gaccaagaca	540
tctgatggca	atccgc					556

(2) INFORMATION FOR SEQ ID NO:399

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1078 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1078

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:399

cggccttcgg	gaatcgccctt	actcattccc	cggtaaaacg	ctccgcctga	agaggatgac	60
cggccggtaa	agtggcagtc	gtatcctgcg	caagggcttc	gctccgatag	tcgtaagcag	120
gacagccgat	aaagtccatt	ttttcatatc	gtcgatagat	tgattgtttt	actttgtctg	180
tactaaaaag	agtcggaccc	gcctttgagc	gtcactttta	cggcgcggag	tttcttttgc	240
aggagtgact	cgctccctgc	atcaccccg	gggcccgttc	ggaaaggatc	tggttttggc	300
ggaggaagca	aaggtgaacg	aagtcccgc	cgctccctcc	atatggctcc	cacttccttc	360
agcgcggaga	cctcttccga	tccgggaata	aaactccttc	ctgtccgtcc	gtatcgaagg	420
cggagagctg	aacggaaaacg	accgtccg	atactcgata	ctcgtgat	gaagcttcat	480
ccggttgccg	cgattcgggc	ctgtgccatc	agtcgggtat	gacggggaat	ggaaaggctc	540
gcaggcgagc	ggactccagc	agacggagtt	gtacgaagtc	tccatgctca	gggtggttgt	600
cctgtccacg	accacccgca	acgtattacg	ggtgacgacg	atgccggcac	gtcggcagac	660
cggaaaaccga	agtttcgctc	cttatgccgt	actcggcgat	aaaagccgaa	tcgctcatgg	720
gctgatccag	agacgaacga	ttgctttctt	ctccggaaga	agctccacag	cgggtaaagc	780
cgccgttctg	ctgtcacccg	tgtcttgggt	gcccggagcat	cggccggg	ttctgactcc	840
gggtgtatgc	atcccgggaa	tttgcacac	cggaggccgg	gagtatttgg	ctgccatccg	900
gtaagatttt	tcgagcagtt	cgagatgac	gtctcctcct	ctttttcctc	cttgagagtt	960
gcgagttcgg	agcgtatcat	tccagctctt	ccgcagggct	tctttctcat	agtcgtatgc	1020
ccggtggctg	tagaatgaat	gtaccatctg	cgacgtttct	tcataccggc	ttaccgac	1078

(2) INFORMATION FOR SEQ ID NO:400

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 404 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...404

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:400

ccttcagcag	caaatcgaag	ttcgagcag	agaaaagcac	cttgccggca	tcgcacgtc	60
aaagttttcc	aatgccgact	ttacatccgc	ttcggaatgt	tgatccccctc	tttgactttg	120
aagatctgaa	tcgggaagat	gggtactcac	catgccccaa	accttcctcc	gtggcacgta	180
acaactcctc	catcacattc	gaccttcggg	cgaagtatca	gtgccgtaat	tgatggaact	240
gaataaacct	gattgcctcc	acgagagtc	atcgtattca	agttgtggat	gaagcttcca	300
tagcctgatg	cgtatcctta	cgcgtctttc	ggaaaactgt	ggcagagcga	tctccacctc	360
tgtactcgaa	aaagggaaag	acgccgcaca	tcgtccctca	tata		404

(2) INFORMATION FOR SEQ ID NO:401

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 427 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...427

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:401

cggatnaagc	cgccgattag	gattaacgcc	gaagactgca	aagcaaaatc	gaattaacgg	60
ctccccggctg	ccaacccatt	tccgggacag	gccactgttt	tctgtttgct	gcttttttcc	120
gtactttgaa	ctgtattttg	gaacaaaaat	attccgttgg	catncaacta	aagaattttc	180
atcataaata	tcccgtctct	tccacctgat	tttgatgact	ttggcttcag	ggcttatacct	240
catggtatct	tgttcggact	ggatatattac	acgagacacg	acagctctat	cgtgtgccgg	300
agttgcgtgg	caaagacttg	aaggangcag	ancgtttgct	gtcaaccata	atcttcgcta	360
caaacttgtc	gattccgttt	atgacaaaatc	ctggctccgg	gtgtcntant	nnaaatgggt	420
ccncaga						427

(2) INFORMATION FOR SEQ ID NO:402

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 451 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...451

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:402

gacaacaatc	cgtacgaaga	gagattcgaa	gttgatgtag	atggagccag	ctcaccgtat	60
tccccggccaa	aaaaggtcag	gaaatagtgg	gttacgctta	gaaagctata	cagacaaggg	120
cttttagcgg	aagttcactg	tgatgtagga	ttcgatatgg	atggcaaaat	ccacgacttc	180
tccgtgctca	gccacacgaa	acacccggtc	tgggagccaa	gatgcaagag	tggttccgaa	240
cgccgccaaa	aaagaaggac	tgatccaaga	tgtacgtgg	gtacagatga	gtgaactcct	300
ctgactgttt	ccaaagacgg	cgggtcaagt	gatgctatca	cagcgcgacg	atcagtagcc	360

cgagcctttt tggatgcaat ggatcgtgcc taagagggtt caaagccgct caaggcagtg	420
cccggacagg ctcaggagtc ttcgaggcag c	451

(2) INFORMATION FOR SEQ ID NO:403

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 458 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...458

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:403

taaaaggact cttaagggac gactaaatat gcttttcaat acgcccattgt ctttctctat	60
tgtttcccaa gaatgaagct tatatttccc tgaaaacgat cttggacatc ttcaaacaaa	120
tacttctgat tagctttgag gctaagatat agtcggcctc tgattgaata atcacttcag	180
caatagctgt ttgtatccca ttgcatcaat actaacaact gatccactta aatcaagact	240
atccgtactt cgggaatagc ttgtaattca ttgtgtttgt ctgtaactgt ctctgacaag	300
acttaagctc acttgatcaa tccatgccga gagtatatat gtaaccagc cttctttggg	360
agctacgcaa acgcttgcca tctatggcaa tagtttaccc tctaaatcgc taatcaagtc	420
ttttccataa aactgagac agcgtaaaga gcaatgan	458

(2) INFORMATION FOR SEQ ID NO:404

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 650 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...650

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:404

agagtttata atcaacctgc aaacctgaca ctctccatta tcctttgcgc aataatgaga	60
tagccattct tgccactacc gaaatatcat ttgagaaaca catatcgcct gacaaaactt	120

atccatattg	ccagttgatt	ctcaatatat	agctctcagt	gtccgagagc	atttgtagaa	180
gttccttttt	cgttatattt	atctctattt	atcttcattc	gtatcggata	atatttgctc	240
ataaatcaac	accctaattg	caaacatata	atacattcag	aaaactttgt	gtttacttac	300
aaactaaatt	ggttttgaca	aggagggtta	tatctccttg	tgaagacagt	tatattattt	360
ctttgtattt	atcatactta	ttcccagtg	ttatacacat	tctctaaaca	ttgacgaaca	420
aaattgaggt	tctcatgcga	gagtttaact	ctgagaagag	cagctgttga	aaaccttgaa	480
taatctcatt	cttaaagggc	catttttgaa	tatattaatg	aatatatttt	ttatctcaac	540
tctttttgat	tagtatcaag	ttgtgtttgt	acaatcatat	ccactaattt	acacatggca	600
tagcagaaac	catactggat	attttctaag	caattagata	ataattatct		650

(2) INFORMATION FOR SEQ ID NO:405

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 908 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...908

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:405

tgctcaacaa	agcagccaaa	gctcgtatcg	accagtatac	caaaactgcg	gtatcggtta	60
cgaattgcta	tataccgagc	taaccattta	tttctcagtg	gacgtgtctg	ctcattcaac	120
gacaagcaag	tgcatagcgt	actggagggt	caggcgtaaa	acgcaagtct	tttgaggag	180
ctaccgagtg	gtattctgcg	acttagcaac	cgtaagcgt	gccatctcag	ccatcaagga	240
gggcaggata	gcttgggggc	aagcgaagt	acgctatctg	acaaccccat	tatttgcgtc	300
ctgagcagaa	agaagccatc	gagcgcacgc	tcaagcagtt	ccgaaaggaa	ataagatgct	360
gtggaatgcc	aagatgcgtt	ttggcaaaac	gcctgtgccc	tgcgtgttgc	caaagagatg	420
gaagctgtgc	gtacgattat	ctcacgcac	gcccgggtgt	agatgccagc	tggtttgagg	480
actttggtaa	accttctacg	accgtcctga	gtggcactat	ggctcccgt	gcaaagggtg	540
agcttcgctt	ctctcgaaaa	gcttgcttcc	caagggaaaa	agtgtgtcat	tttgccctta	600
tgcaagatat	gcgtggttcg	aaggacgtag	gaggtaattt	gacaaaaaca	acgaagtctt	660
ctctacttca	tgggatttag	tgattgggac	gaggcacacg	aagggaacac	gaccgagctg	720
gggaaaagcc	gtattgggtc	gttgatgggt	aaggatacaa	aggcatttac	atctatcggg	780
aacacttata	acctcttcga	tcagcacaaa	gaggaggaaa	gtctttacgt	gggctatgtc	840
atgggaacaa	caagccaaaa	tcgattgggg	aantcaatca	tctggcgaca	cttaccacct	900
atgcctta						908

(2) INFORMATION FOR SEQ ID NO:406

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1323 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1323

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:406

```
cggtgccggt atcggttgga cgatggcaca agcgtgtcaa gatgatacaa tgcctcagat      60
ggtgcccttg cttaacgggtg tcggagggggc tgcntccgtc tcgtgggggat tttgtctctc      120
gcagctatag gaatcaatcc gaataataca cggctgccga ctatccgac ttttcgcaag      180
ctaccgggat gctggcctga ctgtcgggat gattaccctc ataggtagcc ttatcgccgc      240
cggtagctac acaaactact gcctcagaga ccggtgatat ggcctaacca ctctgtgtta      300
cctctttgct actgacctg accgtgggat tcgtgggtgct cggctctgtt ctatcgaagg      360
gtttcccttc ttctgggcta tcctcgagg acgtttttct cctctctctt cggtttgttc      420
ttctctatcc gtgtcgggtg acggatatgc ctattaccat ttctgtactg aactccctta      480
gcgggtgtggc ggagccattg ccggtatggc tgtgggcgat attctactcg tagccgtaga      540
ggtattgtcg gtgccagtgg tctgttgctg acgcagatta tgtgccgcc atgaaccgca      600
agctcatgtc cattctgatg gcttcgggag caaaagcaca cctgccgcta caacgccgac      660
tactgcttca aaacaagaaa aaggagggtt gccgctcctg ctcttgccaa agcagagaag      720
acagccggta gcgtatgcgc gatgccaagc gagtcatcat cgtaccgggt tacggtatgg      780
cattgctcag gcacagcacc aagtaagaca gctggccgat aaacttacgg ctacggtagc      840
gaagttcgct atgccatcca tccgggtggcg ggtcgtatgc ccgacacatg aacgtgcttc      900
tgtgcgaagc cgatgtgccc tatgaccaac ttctcgagatg gatgccatca acggagactt      960
cgctcagacg gatgccgtgg agtaatcggg gccaacgacg taatgaacct tgctgctcgc     1020
aatgctgagg tacgcctata tacggtatgc ccgtgctgaa cgtggacgat gctcccagat     1080
aatcatttgc aacttcgacc tgaaacccgg ttacgcaggt gtggacatcc gctctataca     1140
cgagcaacgg gtgtattcct caaactcgga gatgccagga atctctggca gagatcatga     1200
aggaaatgga tgccacaggc gatacgcagc tactgctgct cctgccaaaag cagagaagac     1260
agccggtagc gtacgcgcga tgccaagcga gtcacatcgc taccgggtta cggtatggca     1320
ttg
```

(2) INFORMATION FOR SEQ ID NO:407

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 529 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:407

```
agaggctcta ccttttcatg ctacagactt ttctgccact cctgctgata cttttgccat
```

60

ctgttggttt	gtgggttttga	tgcagtttct	gtggaaattg	tggacgacat	ggtcggcaaa	120
ggactgagtg	ccatcatctt	gtccaagtgc	ttttctacgc	agccatgacc	ttggttccca	180
tggcactccc	gctgggggtcc	tgttggcctc	attgatgacc	ttcggaaatt	tgggcgaacg	240
cttggaattgc	tgcacatgaa	gtcggccgga	gtaccgctct	accgcatcat	gaaactcttt	300
tcttctctgt	ggtagccatt	gcttgcgggc	ttttcatctt	tcaaacgata	tgatgatcca	360
gtcccaagtg	aaattctaca	cgatcctgtt	tttgcgagaa	gggcgactcc	ggaactggaa	420
attcccgaag	gttctttcta	catgggtattc	cgtgggtaca	atctctttgt	agccaagaaa	480
gatacgccgca	gggaatgctc	cacgacatga	tgatctatga	ccactcttc		529

(2) INFORMATION FOR SEQ ID NO:408

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 427 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...427

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:408

tgaggaaaaa	cgacccaatg	gagaggtaac	ctgcgtaatt	ctatttctag	gttctacaaa	60
ttgcccgtag	ccgacattgg	tcttggcccc	gagaccaaag	tgcagataat	agctttgaag	120
agctttgtcc	taaagtctac	cgtagttct	ctccatgata	tttcaggata	aagcgaaact	180
gatagggtac	acctggtaaa	ccctcaaaaa	acgtacagga	ttagggtttt	gcagaggatt	240
aggatgtgcg	tgatatagtc	ctctccaaaag	agagtgttat	ctactcttat	aggatggcat	300
cgaggaaaat	gtctctgtca	taaatggaat	attcttttcc	tacaataact	tctcaataat	360
ttcttcacgt	gtaactccat	tgntgagctc	atatctgcaa	gggaagtccc	acttcttcga	420
tggcaga						427

(2) INFORMATION FOR SEQ ID NO:409

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 992 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:409

ggatgccatc	gacgaaagta	ttatcggtag	cggtatcatt	cgatacgaat	aagcgcacgc	60
ttcattttatc	cctcgccgtt	ggatggagtg	gaatcttaaa	ggatacggac	aagactttctg	120
ccgaccttgc	cataggagac	attcagacaa	gctgaagccg	gacgtaacac	ctctccccgg	180
aggaggagta	tcattagctg	gaaagttcct	ttcttaagcc	agttggtttc	ccgattcggga	240
gaaagcccaa	tcctgtgttc	aaaacccttg	gaagtgcctt	atgtttctgc	cgcaccgcac	300
aaaccccaa	tcctcccggt	ggcgtagtca	ttgcagacaa	gttatggccg	gtacatatcc	360
cgaaaaggct	gctatcgctg	ccgtttatgt	aagccatccg	ctccggactc	tactttccac	420
ctctttctcaa	gagcaacaca	acagaagatt	gcagaagggtg	acaactccct	ccgattggca	480
ggccggaaca	ggttgaggat	caatttggat	aagccgttcc	cggtgaataa	tgaccatatac	540
tttttgccgg	tatcagaatg	cctaataagt	acaagctcaa	tcgtgctacc	gttatgtaag	600
aatccggat	aaccttttct	ccattaccgg	taagaagttt	catataacaa	cggagtctct	660
ttcgaaggct	acggaatacc	ctcgctttgg	gctatatggc	tatcaaatat	ctggtggtaa	720
ataccgatgc	tcgagatcg	atatgtcgct	tgtacaggag	ccttatgcta	agggaacgaa	780
tgtgctccat	tcctccgaatt	ggtcggcata	tatgtctata	agaacggaac	attatcggca	840
cacaggatcc	atccgtcaca	acttattcgg	tttcagacng	aaagagagcg	atgaatacga	900
aataaaaactg	ggtatataag	gggatccggg	ctttcgaatg	ggcgttgctc	aagattgaga	960
ataacaatgc	tgccggttgc	tatccgtctg	tt			992

(2) INFORMATION FOR SEQ ID NO:410

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2585 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2585

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:410

agtgtaaaat	gaaaggataa	aggggataaa	gggcctgctt	attgcgaaag	tcttcatacg	60
acaaaagcaa	atcctgaaga	tcgatctgcg	gcgaatggga	aggaagagga	aggagggggc	120
ttattttgggc	tgttgcccca	ttgccttcga	agttgtaggg	gtgtattgcc	gagcatcttg	180
cgacagaaag	cacagagtag	ctgacagagg	agaagagatt	cttttccgct	attgccttga	240
gagacgagac	ggatcggcca	agtctgtgta	gacatgcttg	gccctttctt	catgatccat	300
ttgagtggcg	gacaactgaa	ttcctgattg	aagtgcggtt	tgaagaactg	agcgacagat	360
tcatttttggc	tgcaagctct	tctgccgatc	ggactccaaa	tggtgtcgga	atacgaaagc	420
acgaaagccc	ttgtttctgac	atggaatgag	gagagaaagt	tgtctaaaag	cggcttttctg	480
tagcgtgagc	gaagatgcag	aagagttcgc	gcagtttcag	ctcgaatatc	tcggacgaat	540
gggcatttct	gacaaatatc	ccatcacaga	gtggagccag	gagttcacat	tgtctctcgt	600
tgcaaggagg	agatgtgaac	gatttcgggt	cgtctccgca	ttctttctta	ttgcccgaag	660
agggacaaat	gccgaggcat	aaatggcgct	gggatggaaa	taaaaagcaa	tgagcgtagc	720
cgggcctttt	tcagcctaag	tcttatacga	agattggcag	ccaaaaggac	aacattatct	780
cccgaattg	cgaattaccg	gattccggcc	cgacaaatac	ggccggctct	ccttgagcag	840
gaagagcaaa	gcatggctgt	ctttgggtcca	gatttccaaa	tcgctccttg	tcctaccgtg	900
tggagtccgg	gcaatccgga	cagagcagtg	gcggtcggct	gttggttcag	atgccattcg	960

gattttcttt	gggagagaca	gctgacagat	atgaatactc	ataaggagga	tggtcgggcg	1020
ttatctttgc	aaagcgagct	attatgtgac	gagctgcctt	gtccgaggta	ttgtccgtcc	1080
gatgcttttg	cggatggagt	cgtatccgga	caactgtgct	tgtcgcttgc	ggacgaagca	1140
tcaaggagcg	gagacaaact	tgcggccaac	cttttcccgt	gaacaaggct	ccgaaaagtt	1200
cgggcactac	agccctgccg	gcaatagggt	ggtcagcgaa	ataaaaaggcg	taccaaagca	1260
atacttgaaa	atcaattggt	cagtcgacct	cctcgaatat	agtagcatat	gacctgtggc	1320
gtacgatcag	tgcggtttcg	agcgtagccg	ttcctgaagt	tacgagggct	gcttgctctc	1380
tcggagtatt	tcatacgtgc	gtccgaatac	aacgggaatg	cgctcgtcggg	caaaaaatgga	1440
gtatagtcct	gtatcgtcag	tccgggtgca	cggctatgac	agggcggtag	tccgggaatt	1500
gcttcatcac	acgcagcata	caggcaaatt	ctccttcact	tcgagcaagc	gacttccaca	1560
gagaagggta	cttgacgaga	atctttggct	gaccgctctt	gctcttcgat	cgtaggcgca	1620
tgtgttgctt	gacggcatca	tagcacggat	tgcctacata	gatgacggaa	aatcgtgtcc	1680
ggcaaaaaaa	tctttctcga	aaggcaagat	gcagacatga	gatcgacgta	tttcttcaac	1740
gtcttgattc	gccaggattt	ccatcccaga	ccttaggaga	gatataatag	actatcggct	1800
tgccaaagctc	ttccgtacaa	acggaagtac	gtagcgcata	ttgaagcccg	ggtagtccac	1860
tggatgacaa	cgtcgggggtt	aaatgctcgc	atctgtctct	gcacatgttc	gccgcgcggc	1920
ggatgacacc	gaggtgcgtg	agtaccggaa	tgaagcccat	aaggctactt	ccctgtaatg	1980
aaagatcggg	cgctctccgg	tagcctcggc	aagaaatccc	cccccatgaa	tgcaaacacg	2040
gcttccgggt	catgctcttc	aaggcacgaa	ccagattgga	tgcattgcagg	tcgcccagg	2100
cttcgccgct	acgatgaaat	agcgcatacg	caataaagaa	aatcagggaa	aggggaagga	2160
gatcagacgc	tcctcttgag	aagttcctcc	aagacaggta	gataagtctc	gaagtcatat	2220
tcagtttgat	gggagatagt	gtaacgtagc	ccgctgcata	agttccaaat	cacctcttat	2280
ggtgccttta	ttgatctgac	gtctgtcctc	caatacacag	cattgccccg	tgcattctcg	2340
gaagccatgt	atcgtcgaca	aaacgaccgt	ccgtaacggc	gcaaggcttt	agccccaaag	2400
gtttcccttc	ggaacattca	tgcttagcat	cgtgtcctga	ggcaagccat	cttcaggatc	2460
atacgactga	catgcacggc	ataggccgtg	gcattgactct	atcgcaaata	tcgctatggg	2520
cgccagcgga	aacggccaga	gccggcactc	acacacacat	ccttccatcg	cagcaccac	2580
cgtgc						2585

(2) INFORMATION FOR SEQ ID NO:411

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 440 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...440

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:411

cagctcctcc	tgtcgctcaa	aaaaaacctg	cagcagcaca	gtatcatcac	gaaaccacga	60
acacgaacta	ccggcaagag	ttcgtccaac	ttggcacgag	atgagtggta	agctttcctt	120
cgaagaatgg	aaagaactgt	accgccgata	gtattctggg	agatagaact	ggaacaagcc	180
gacagacaga	tgggcgactc	ctcgaaatgc	agaaacagga	agccaaccgt	ctctttgccc	240
gattctcaca	caaaactatc	gggaatggat	tgccaagccg	gatacacgtt	cgacatgagc	300
ccggatcttt	tcaaacaaaa	ggtattcccc	ctactcgaca	atgcgaaaag	gtattcttca	360
tccttcatag	acaacttttc	ggcaggatca	gtggagagcg	tgaaatccat	gctcagcgag	420
ttttacacct	tcgaagaaga					440

(2) INFORMATION FOR SEQ ID NO:412

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:412

ggtgaagatg tagtcaataa gaacttcgcc gcagtggatc gaggtggcgt gtggtagaga	60
taacggtgaa acccgaatgg gctgacctgc ccgacgatcc gtggtacgcc acgagggaga	120
cacggacttt gtccacaacg tggtagcccg atcaacgcac aagccggaga cgacctcccc	180
gtatccgctt tcctcgacgc gaagacggta catgggattc aggaacggcc gcttccgaaa	240
aacgcgtgtg gcagctttcg ttcctgtatg ggaagctgac aactgtgtac agtgaaccag	300
tgtgcctacg tttgtcctca cgctacgatt cgctccgttcg tcccaccaag gaagaagagg	360
agaaaaccgg cgtcaagggtg ctcaaggctg tcgaaaacag ttcccagaca tgggcttccg	420
cattcaggtg aacgtaatgg atgtctcggc tgtagcaact gtgtggatgt atgtccgggc	480
aataagaatg caaggctctg accatgcagc ctatcgagga gcagtacgaa gaaccaaaaa	540
actgggataa gatgatctcc ggtgtgaccg gcaaggctca cttggtggca tcgcagccaa	600
tgtgaagaac tcgcagtttg cgacgcctcg ctttgagtct cgggtgcatg ttccggttgc	660
ggtgagactc cctatgtgaa gctgataccc agctctatgg agaccgccag acagtggcca	720
acgctacagg ttgttttcca tctactctgc ttcggctcct tctacacctt acacgaagaa	780
cgaggcggcg aaggcccggc atgggccaat tcattgttcg aggacaatgc agattcggtc	840
tcggtatgca cttggcatat aagaagatgc gtcgccgcct tggaatcttg cagaagaagc	900
tcagcagctc ccctgctgtt cggacgagct gaagctctct tgagagaatg ggtagaaaag	960
cgtcaggatg ctgtcgccag aaagtctctg ccgataagat caaacctctt gtcgctgcct	1020
gcgattgtgc atctgcaaga gaatcggccg tgtcgattcg ttcttcatca agcgtgcaag	1080
tggatcatag gtggagacgg ttgggcatac gatatcggtt tcgggtggtt gaccatgtga	1140
ttgcatccgg tatgaatgtg aatatcctcg ttctcgtaca gaggtttatt ccaatacggga	1200
ggacagtcgt ccaagatgac tccgacggag ctatagccaa gtttgccgca gccggtaagc	1260
gtatcaggaa gaaaacctcg gtatgattgc ttgtacgta tggctatgtc tatgtggcac	1320
aagatctatc ggagccaatc cggcacagac gctcaaagct atccgcgaag cgaagcctac	1380
gacgggcctt ctatcgttat cgcctactcg ccctgtatct ccacggtatc aagagcggta	1440
tgggcaagac tcaggccgaa ggcaagagag cgttgagtgt ggctactggc acctctggcg	1500
ctacaatccc gaactggaga agagggtgaa aatccgttcc agatggatag caaagagccg	1560
aactggagga attcaagaac ttctcaaaag gcgaagtccg ctatgcatcg ctgtacagga	1620
attccccgag gatgccgagc aactcttcga cgctgcgttc gaaaatccca atggcgctat	1680
cgtaactaca tgcgtatgag tgcggcagac tggctttgcc tcttgggtatt caggacatca	1740
aggaagaaaa agactgcgat cactagcgta tctacgccct tataacaaaa tcgaggctgt	1800
gcagctaagg atttattctt agtggcacag cctcgattgt ttctattcct acccgatttc	1860
gtcctgctca aa	1872

(2) INFORMATION FOR SEQ ID NO:413

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 342 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...342

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:413

ggtcttgctg	gtggatttgt	tttttaagac	tatacaagac	gtaaaataaa	aagcaccttt	60
cctcccggag	aagtgtctct	tttcgggtatt	tctatgaatc	ctaccgactg	cgatcgattt	120
atcactttta	taatgggttac	atcattagac	caaattggctt	tggctaaaca	aatgtgttac	180
tattacattg	gcaaagtata	gccagccatg	catctccaca	ataccgatta	ataagtaaaa	240
ttattttag	gctacctaac	catatggcta	aatggatatg	actttcaaga	tcttccgatg	300
tgaactaaat	aagctgacag	tcaaaaaagt	taattcagct	tt		342

(2) INFORMATION FOR SEQ ID NO:414

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1300 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1300

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:414

tgcctttcct	gactaggctc	acatagtcgg	ggtagagcgt	aggcctgtct	agcagcgaat	60
agcagcatgg	gcatcatgag	ctctgtgatn	cagtcattcc	catcagcaca	tattcttggc	120
cagccgacgc	atacctcgcg	ttgctcgcca	ctcgencgca	gctcttcctc	gcgacggcgt	180
gcgtactcca	ttcgacgctt	actcacagca	gcgacgaaan	agcgggtcgt	ccattcgttc	240
ttcctgctaa	tgcctgcgaa	aaggcaccga	tggcttccgt	ataatggcga	gcatccacag	300
tcggagggtc	tgtgcatact	cgcgttctgc	ttcggcacgc	agggtgagcc	attgatgata	360
tccaaatcat	tggctcgcg	ataaaaaatc	atatctcacg	acggacgata	acatcccgc	420
cggcaagcgg	tgcacgcagc	acataccttc	gagcgaacga	caccggctga	gagctacata	480
ggcctgaccg	cggcaaaagg	gccttccgag	aaatcgatga	tcacacgata	gaacgtcagc	540
cctggctctt	gtgtaccgtg	atcgcccaag	ccaatttgag	cggataactaa	cgaatcttcc	600
cagtacttcc	tcctccactt	tattggcttg	ctcattaagg	agaagcggtt	attgtcccag	660
atgcatgggt	ccaccgttac	aacttcccgg	tgctgagaca	tacatctatc	gtttcactct	720

cctgatcgaa	accggtacta	tgccgagtg	tccattgacc	catcgacgat	ctttgtcggt	780
ggagcgaaata	tcacctgagc	atcctgcttc	agtgttaagtt	cctcctctgt	cggaaggatg	840
aggagggaaa	atcgcccttcg	atagtgccgt	acaggggtgac	gggtcgccct	gcagctgttc	900
caattgccgc	tcattgatgt	aactcacgtg	cggcgtttgg	tggcaagtgt	gatgaccggt	960
tcgtcccttcg	gcggctcgtg	tggcgattga	cacatttatt	gatgtcctga	agatcctgtt	1020
cggtaagccg	cccgatcggg	ttcgatcgag	tatctgcacg	aatgcttgct	ctgtctgtga	1080
tacaccttgg	tcagctccac	tgtgacggga	gggggttgctc	gcagtgtctg	gaagagaaaa	1140
agaaggggtt	gggataaaat	cgtttcagta	tgtcggatca	tctgccgtta	ccacaggttc	1200
aagctgataa	agatctccca	cgaacacatc	tgacacaccg	cgaaggcct	ttcttgccgg	1260
cctctgtata	taccaggagc	ttatcgatgg	cgtcgatgac			1300

(2) INFORMATION FOR SEQ ID NO:415

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 757 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...757

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:415

aggatccccg	cttgaagcta	ttgttcgtac	atgtcgttcg	agtagtcggg	catcaagctt	60
aatcttggcg	ctttgggct	aaagaccaac	tcccaaaagg	acgccgcgat	cagcaataat	120
aatttcctca	tactttaaaa	caatttaggt	cgtgattcag	agaaccacgg	ccgggttaaa	180
aaaacaaaaa	aaatcccaaa	taagattcat	ttcaagaaca	atccaagaaa	agaaaaggaa	240
tttaaggcaa	aatgtacact	tctatttcta	ttggtacttt	tctcaaggag	ttttttgcgg	300
cgcaatttag	agaaaaaatt	cgatttaaga	agagtatcgg	atttaaagaa	catgttttca	360
atataagcga	caagggatta	acccttataa	aagctgtcaa	ttagcctttt	gccaaaatat	420
tgactgtaat	ctgaaggaga	aatgaaagag	gaaaagggtc	atgctccacc	tcattaaaag	480
tcagagtctt	taaaagtgtt	gtctaacaac	acttaaagtt	atttgtttgc	atgtatttaa	540
accgaaaagt	agagcagacc	aagggttaagt	cagtccagca	tgaggaagga	gcggagggga	600
aaggggaaaa	aagatccttg	actaaggagt	cgggggttga	tgtggaagta	aagagttctc	660
gggctgtaca	ttgttcgaaa	agacaaacgc	cccttactga	tatgataggt	accattatgc	720
tgagagaaaa	gagggcacta	tatgcgaaag	agtaacc			757

(2) INFORMATION FOR SEQ ID NO:416

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1324 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1324

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:416

gactctagag	gatccacgg	atgacatccg	ctacatgcgg	atcgcgctca	agaggcacga	60
gcggctgctg	acgaaggaga	gattcctatc	ggagccgtat	cgtctgcaaa	gggcagatcg	120
ttgcgcgtgc	tcacaacaga	gtggaaagct	aaacgaccct	acggctcatg	ccgagatgct	180
tgccatcacg	atggcctaga	tgccataggg	gggaaatacc	tccgcgactg	cacgctgtac	240
gtgacgtcga	accctgcctg	atgtgtgctg	gcgcacttcg	ctggacacaa	atacgcgagt	300
agtgtacgga	gcatccgaac	ccaaagtggg	ctacaggctg	ttcccgatca	tgactccat	360
cccaaattgcc	acgtagaagg	cggatatattg	gcgacgaatc	ggagaatctg	atgcgtagtt	420
tctttgccga	acggcggtag	cgagcaaac	attatatatc	tttgtgcaat	atggcagcat	480
tcagtgtaca	atattgggct	gcggatctgc	cctgccaaacc	acacaccacc	atccctcttg	540
caagtaatcg	acctgcgcga	caaactctac	atgatcgatt	gcggagaagt	gtccagcgac	600
aattcagaca	cgaaaagctc	catttcggac	gtctcatcat	atcttcatca	gccatctcca	660
tggcgatcac	tgttttcggt	ctgcccgaatt	tatctccacg	ctcgggtctgc	tggggcggtac	720
cggcacccctg	catgtcatgg	gccggaggga	atagagcggt	tcctcagccc	catattggag	780
cagtctgtca	ccgaatgccc	tatcaggtgg	agatacatat	gatcgatgcc	tccgacatgc	840
gcttgtacat	gaggacaaat	ccgtcaaagt	ctatagcata	ccctcagcca	ccgcatccct	900
gcgggtgggct	acctcttcga	agagaaatgc	ctgcaaggca	tctgaacaaa	gcggctgccg	960
agttctacaa	tattccgctt	ccgaatatcc	cctcatcata	gaaggatccg	attacacgac	1020
accggatggc	ggatcatccc	caaccgacac	ctcacgaccc	cgggtacacc	accagacat	1080
atgcttactg	ctcggacacg	gagttttgtc	cctccatcgt	ccctattttc	aagggtgtgga	1140
tttgtctac	catgaagcta	cttttatgga	ggaggacggg	caagagccaa	agagactttc	1200
cacagtacag	ccaaagaagc	cgccgaatag	cacgacaggc	aggagcaaaa	cgctctctca	1260
tcgggcatta	ctccgcagat	acaaggacgt	ccaaggtttg	ctggaagaag	ctcaaagcgt	1320
atta						1324

(2) INFORMATION FOR SEQ ID NO:417

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 588 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:417

gaacctcagt	tcgaaggaca	gaccaagacc	aagctcggtg	acaatgaagg	accggtgctg	60
tcgatatggc	tgtaaagcaa	gcactcgaat	actatctgag	gagcatccga	aagaagccaa	120
actgatcgtg	gacaaagtgc	ttttggcgca	actgctcgtc	aggcagcccg	taaggcccg	180

gaaatggtgc	agcgcaatcg	cccttgtccg	gtggaggatt	gccgggtaag	cttgccgact	240
gctcgccaaa	gacccggagc	agtgcgaact	cttccttgtc	gagggtgatt	cggcggngga	300
acggccaagc	aggggcgcn	accgcgagtt	tcaggctatc	ctgcactgag	gggaaagatc	360
ctcaatgtgg	agaaagccat	gcaacacaag	gtttcgaaag	cgaagaaatc	cgcaacatat	420
ataccgcttt	gggtgtgacg	acggaacgga	agaggacagc	aaagccctta	acctttccaa	480
acttcgctat	ataaagtggg	gatcatgacc	gatgccgatg	tggacggtag	ccatatcgca	540
cgcttatcct	tacgttcttc	ttcaggaata	tgcgtacgct	tcatacaa		588

(2) INFORMATION FOR SEQ ID NO:418

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1340 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1340

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:418

aatgcatcca	gatttagcgt	aaaaatctca	ttcttaccct	gtattcatta	accgcttctt	60
aggctcctat	agaaatagtt	gatcttttcta	agtgccttctc	tagtgttttc	gcagggtatat	120
aaaaaagaat	atccatacaa	gcacagctgt	atcaaaaataa	tcctcctctt	cttttccatc	180
tctcagggat	atgataaaga	gccaaacccc	ttggattgtc	tcgcaccaa	gttatggagc	240
ataaaaagtt	ggtgatgaga	ttgttcacct	cttctcttag	tccagcattc	tgaagcgtat	300
tacccttca	actggagtat	tgacaaatgt	tgctaattgt	acctctgcc	gttttcttca	360
aatattcttt	ttttattttt	tatttggtct	gggtgtcacc	atgctttata	ttaggttctg	420
atttagcctt	gtcctcatta	gaaagtaaga	agtcaagggt	agcatctcaa	cctcttgac	480
tcctaacttc	cttggtcgag	gctttttaat	ttatctat	ctttcgggtt	actactcatg	540
gcaagaaata	ctgcactttc	gcacagggc	ttagcttaaa	agagagttgt	agttcaaggc	600
tccttcttgt	ccggggatga	gacaaagctc	caattttcac	ccttattccc	tttctttttc	660
tcttctctcat	acactctgcg	agcctctcat	ctttattttg	aaagtattct	atcccccttt	720
cgataaagtt	ttttttgttg	tcgaagcagt	tttctttaca	aacctcttgc	ctatctgtgt	780
caagtaaaact	tgtcgagcct	cggtttgacc	tcggaggcgc	gcagcgttgc	cccgcacccc	840
tggcctggaa	gtggatgatg	ggcgtatgct	gttccaattc	aattccaact	tatacatcgt	900
ggtctatgct	ttttgttttg	tattgtcctt	aaatagactt	ccatgagtc	cttattggtc	960
tcaagcaacg	attcggagaa	ctctgccatt	tattcaaate	ctttgttctt	tctcgttcta	1020
attcgaacat	gttttgtctc	gtaattcctc	ctttttgatt	tttaatttgt	agctccatta	1080
atggctacga	caataattgt	ggcagtggtc	actaccacaa	aacagagaag	attaaagt	1140
ctatttccat	gctattttct	gtatttgaaa	taatgtttat	tgggaagtag	aggcagatgg	1200
caaatactat	aagcgtaata	atatcccacc	caatagcccc	catgtcgagg	gacaagggtc	1260
cccgatattg	aagagcgagt	gatgcatcct	ttttcaacaa	aagtgttgat	gcctaaaaag	1320
ccacaagtaa	cgtgataggc					1340

(2) INFORMATION FOR SEQ ID NO:419

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1514 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:419

gatagagata	ctcttgagaa	ggattgattt	ggaagagggtt	ggccgaagct	ttccggctat	60
tttgccggag	ctgaacggta	ccacatagtt	gatacctctc	gatctgcata	gcgtgatata	120
gccgctatct	ggtcattgga	ggctcctcga	taataagggtg	acagtcattg	agctcaccac	180
tgtggatcac	atcctcgcac	cagacgtatt	cgatacatcg	taaacgcgca	aagtcaccga	240
cactctctct	tcttcagacg	attcagcccc	atcagcatac	cctcgtagaa	ttcccatatc	300
gctgggtatt	gcccgataga	gggagcatca	gtccgacctc	tatgcctccg	actgcgatgt	360
cgtaggggag	gaagccatag	ccgtggaaatc	gcgccgggga	tgcgtagtgt	gtggcctgca	420
gggaagttgg	tagcagatat	accggattgg	ctttcatcag	ttcctcttcg	ctcaatccat	480
atcttctgct	atggagtaga	gcgtttcctg	tggccggata	atgtgttcgc	tcggatgaca	540
gcggcggata	ttttgctatt	ggcccggacc	ggtttggacg	gaatgagcga	gtctgccctt	600
ccttgatccc	ttgtctggcc	gaagggttga	gcgtataata	tcctcctccg	acagaccgta	660
ttggcgcgcc	agtcataaaa	cggctctttg	gcttgcaacta	cgtgtacttt	tgtcctgcta	720
cgcgctcgac	cggatccgat	actacggaca	tcagcacaca	cgtaatcagc	aggatataaa	780
gacctttatc	cggaatacat	gatctgtcat	ggtttccccc	tttctttttt	agtctattta	840
ttattaggtg	agatggggca	aaggtaacaa	taacgactct	gcggcaaatg	gttatcctct	900
ttgcaatctc	catataagag	aactacgtgg	gttaatgtct	tcgttataaa	tcaagccatt	960
tcaatatcga	aagacatggg	gcttaagggt	atcccggatt	ggtcattgga	aaagtaaggc	1020
ctaacgacaa	ttccccgggt	ttatcgactt	cagtcgggtg	ctattgattt	gggttggtgag	1080
cattctttgcg	cgtgagcatc	ttcaggtccg	tgtagatgtc	cgtacttctg	cgagctgcag	1140
tattgcaaaag	gtgtgatgga	agcagcaata	agcaattgct	tctgaatgcc	cgaagctgca	1200
atcgaatacc	ttagaaggcg	atgcgcataa	cgaggccgga	aactccgtat	ataaggcgat	1260
aaatttccgt	atatagaaaa	tttatttccg	tatatacaca	aattttattc	cgtatatacg	1320
aaaaaatattt	ccgcatatgc	ggaaatctcg	ctaccttcgt	ggtgcgataa	aaagcaatca	1380
aatcgagata	gtaaaagtgt	taataaccag	ataattaagt	tattatgatt	aagattaaag	1440
caatcgaaaag	aaaggccgga	ttcggcaaga	cagcaaacgc	ttggtaccct	gcaatcactg	1500
cattcgatgt	gaag					1514

(2) INFORMATION FOR SEQ ID NO:420

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 822 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...822

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:420

```
tggccgtatt tcctttcgtc tctgtcgaac tgcacccctg tctggcggat cccatccagg      60
cgatttgtcc cctcaggaac ttgttctgct cgggcacccct cgcaggcact gcacgatctt      120
ccggtcgatc agccggaagt cgcctgttcc agcggcatat cgatagacgt gatcttgccg      180
atcgctccgg agaaactttg gccgtcgctt tcttgaacca cgtttcgctt tcgcatgct      240
tccgcgtgca tagaccactt cgtaaccctc acggtatttc gcatacagtt ccggatcaat      300
tccggcggat cctgcaagtc gccgtcgatg atcaccgtag cttccctc acatgggtcta      360
atcctgccga cacggctatc tgatgaccga agtgcgactc aggttgatgt agaagaaacg      420
gtcatcacc ttgcacaggc tcgcaatagc tccatcgaac catcggcggc tgccgtcatt      480
gacaaagatc gttcgtagtc ctccgttatc gaagccgccg ccgactcaa ccgccgcaca      540
gctcgggaag ttccctttct tcattataga tcggcacgat gatggaaact cttcgtata      600
agtcgtattg acatccatta gaattgacgt ttagattttt tcggcacttc tcagggtgaaa      660
aatgaagtgc ttaggtgaca agggtcggac cgttcccttg tccgcttcgg gatggaacca      720
gcggatcgta ctgtccgtct gaaccatgtc atttgcttgc gggcatatac gcgactgttg      780
cgttgatccg ccttacggcc tctgcccgat cgatcgagcc gt      822
```

(2) INFORMATION FOR SEQ ID NO:421

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 626 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:421

```
ggatccccgg gaaaaccgct gtcattgtag taggagcagg tccggcaggc ttttcgcagc      60
actccggctc atcgagcttg gtctgaggcc tattattcgg agcgaggtaa gtccgtacac      120
gaaagaagag cagacatcgc tcgcattcca aagaggggca cgtagacccc gaatccaatt      180
acggatttgg cgaaggggtg ccggagcttt ttctgacggg aaattataca cacgtagtaa      240
gaagccggag atataaccaa aatactacgt attctctgca aacacggagc acagcttcta      300
tcctgatcga tgcgcaccca catatcggca ccgatcggct accaaaagtga tagaaaacat      360
tcggcaccaa atattggcag ccggaggaga agtcacttca gttgccgaat ggaaagcctg      420
atcatacata acggtcaagt ctggggagcaa gagacaacaa ggggcgtgaa tactgcggtc      480
ctgttatcct gcaacgggac attccgcacg cgacatctat cgctatcttc accgaaacgc      540
attcgaatgg aagcaaaaagg aacagctgtc ggtgtccggc tggagcatcg cagcntctga      600
tcgaccaact gcgctaccac aacccc
```

(2) INFORMATION FOR SEQ ID NO:422

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1128 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1128

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:422

gccacatagt	tgtgaaaagc	ccggacaaaag	agcaccagcg	aaagcacgta	accaccattc	60
ccgcaagaaa	ccatgccgta	ccgaacttga	acgggacgaa	acggaaagca	ccaatatggc	120
aatttgcagg	attgtactga	cagaggcttc	gccttgtctt	tggtcgtgta	ccacgaggta	180
tccaccgcgc	gctttctccc	tcacggaaga	ttgccatata	tataaactgt	atcagcacca	240
tgccgacgaa	ggtatccatg	cgttcagcca	tccggcttgc	aacgtgggtga	aaaagaaaaa	300
tcactcatag	tcatacggga	tgatattgtt	tttttaatgt	gatagcgata	cggcaaaaat	360
cagggtatac	accagattgt	tccatccgcc	cgtatcaaca	gaagaaacgg	ttgcggcagc	420
gtttttccaaa	ggaaattgag	cagatgggtga	tcaacgggtgt	tgcgaaaact	atccaacgag	480
gaaaaagaagt	tgcttttgca	gcaccaatac	agaaaagagc	aaccatccga	ttcccattag	540
aaaaaaagaaa	aaccgcccaa	ccagccggca	taggagagaa	aatggctcgtg	atttcgggat	600
gtccctgcga	cgatacgatg	ccgaaagccg	ggaagaagca	tgataagcac	ctcctacaat	660
tatacttacg	gatagggaag	caagcaccag	caggctgttt	ttcgtcgcgc	tttcttaacc	720
ctgagaaaca	aatggagaat	ccgatgatgt	acagaaccgc	cgccaacggg	cctattatcc	780
ctccgcaatg	agacgctcca	agggcactgt	gcccatagaa	agcagcagat	cttttcccga	840
tcggggaatgg	gttgtgtcgt	aaaatacagc	aacatgtcgc	cgtatacatc	agcaggctac	900
ctgccactcc	cacataccct	gtcaatctga	gttcttatcc	ataccttttt	cttattattt	960
gagttcgcaa	aaatatacaa	tagaatatcg	tttgcaatcg	ccaatagtgg	ctattttcac	1020
agccccggaac	cctattttctt	agggtttgtc	gattcgtcaa	tcagtaactc	atatacctcaa	1080
attcaacctt	taataatctg	tttggcattg	gctctctgcc	ggattgca		1128

(2) INFORMATION FOR SEQ ID NO:423

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2750 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2750

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:423

aactccttta	tagcggcatg	atccggtgtc	tgaccagatt	gcgccggaac	gcggtatcct	60
cattggaaga	gtcccgtacg	ataggtgatt	ttttggtcag	cagataagcc	tctatctcat	120
cccgtgtggc	atccagcagg	gggcgcagat	accatcgttc	cgcttatagg	gcataccgca	180
caggccgctg	attcccttcc	tcgacagaga	ttcagcacca	tggtttcggc	attatcgctg	240
gcatgtgctg	caccgccacg	tattcgatag	ccagttcttt	ccgcaactgt	ccgaccattc	300
gtaacgcagt	tctcgagcag	ccatctcgat	cgaaatcgac	cgccgcgagc	ataacgaacc	360
gtgtcgaagt	cgatccgatg	gagcgggaaca	tcagatctcg	gcataggcgc	tccacgaaag	420
ctgcatcctc	atcgctctct	accctcggag	gtgaaaattg	cagtgtgccg	ccaccgtctc	480
atacccaat	cgcgcaatac	gcagagcaga	gccaccgagt	cggcacctcc	gctgagagca	540
ccagtacgag	gcggtctcct	tctcggaaga	gcttcgcgtc	tctgatcgcg	ttcggacacg	600
gtttgtcagg	gaaatcttca	tcttgtttgt	aatatatagg	gggaaaatat	cggcccggcc	660
atcctgccga	tggaaaaaat	ttcttgaaat	gaagaggctc	tttatccgaa	taagccgaat	720
gctgccataa	aacaagagag	aactctcgtc	ctctctcatc	agtcctgccg	gcatactccga	780
agaggccgaa	ccttatctcg	gaaaacttat	gcacctgtga	acccgaagca	tcgccggaag	840
cgaaaaaccg	ctacaccggc	ctcttactct	tggggagctt	tagctcccat	ttcgggatcg	900
accatgattc	gtccgcagta	ttcgagacg	agatTTTTTT	ccgaagcttg	acgtccagct	960
gcttctgagg	aggaatcttg	tgaagcaacc	gccgcaagca	tcacgctcta	cgggcaccac	1020
ggccaaagcct	tgtgcgcagc	ctttctgatg	cgcttgaaag	ccgtcagcag	gcgcggttga	1080
tcttggcttc	gagcttcttc	gcctttctgc	gcagtttctc	ttctcttgct	tagtctcggc	1140
aatgatggta	tccagttcgc	cgcgtttttc	ggccaaacct	cgtatgtctc	ttccagcacc	1200
tctttcagag	tagctatatc	ggtctgcgct	gttggatttc	gacgttggtat	tccttgatct	1260
tcttttcaga	cagtggatct	ccagctcctg	aaattcgatc	tctttggaga	gattgtcgaa	1320
ctccgattgt	tgcgcacctc	gtcgagctgt	tttttatatt	tctccagcag	cgttggctg	1380
tactgatctt	ttctttttcg	gtggttacag	cctgattgag	cgttggatc	cggctgtgaa	1440
gttctccaaa	cgagtctgca	ttccggcgat	tcgtcttcca	gatcctgtac	ttccagcggc	1500
aattcgccac	ggagagtctg	atcttatcta	tttcagagag	ggtatTTTtgc	agcttgctca	1560
gtgctgccat	ttttcctcta	cgctctgttc	gttctcaacg	atgatctttt	ctttagcatg	1620
atgctcaatt	aactaactac	aaatagttta	ccggattggg	tgcaacgatg	atTTgtgggt	1680
ggcaaaggta	gggaatttct	gcgatattat	gcgcaaaata	gctcattagc	cacctcttcg	1740
ctctcgtaat	gaccgatcgt	aaccgcagca	gatgctcccc	tgcatcgaag	aagtcgttgt	1800
acttcgcctc	cccgtcagga	agaggctctgc	acctcctgt	gctgcacgcc	gccacatgaa	1860
agaccgctac	cgcgcgatat	agccatccgc	ctcaacggcc	gttccctcca	accgaatggg	1920
acaggacctt	cagaccgaat	acctccttga	tgtgcagcag	atctcccgct	cgttatggg	1980
cgaaggcaga	tccccacta	ttccgcctcg	gccgagggat	gatcgttggc	cagcgggatc	2040
aggctgacag	ccggcagccg	tacggatgag	ccgcgtgcaa	agcctgcagc	acagtacctt	2100
gcctgtagcc	ggcagtacga	ggctgatccg	ctcctccgcc	tcattggtgca	attcgctatc	2160
gtccccacaa	agggatttgg	acctcgggca	gctctgaaag	tcccttgccg	gcattggctga	2220
acgaacagca	atcgtaatgc	cccaaacggc	ctgcccggcc	tgccacaaaag	cctgcctcac	2280
ggcatcggca	tactccgttg	ggagaagggtg	accagttcta	agagcttgcc	ttgcagcggc	2340
tccagcggtc	gctattcagc	aagccgaagc	gttcggccag	cagcgcattc	agtccttgcg	2400
ggcgttgtcc	gcatttggtat	gagccgcata	tagcaccaga	ccgtgccgta	ggccagctcc	2460
acgcatacgt	ccacgttaga	gctgccggtc	aatcgcttgg	cggtttgaaa	agaatcggat	2520
ggtgggcaat	gacgagattg	catcccagcg	aatggcctcc	tccaataaccg	cttcggtaac	2580
atccacacag	aggagggacc	cgttgccctc	cgttgggtg	cgccacctg	cacgccacta	2640
ttgtcaagct	ctcttgataa	gccctcgggc	agaccgcctc	gatagcctct	ataattcctg	2700
aatgatcatc	ttcgagtgcg	agccaagagg	ctctgtttgg	tttcttgtcc		2750

(2) INFORMATION FOR SEQ ID NO:424

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2201 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2201

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:424

```

tgggtgtaccc acggggagaac cggattaccc gaatatcgggt atcgacgaca tttctctatg      60
ctgcagagggg atatgcacaa gattcagaac cgtgtccgct ggngcatttt cgcggcaaaag      120
ccacctgccc cgattgtcgt gggatgcaact caagccggat gctctgtgcg tgagaatagg      180
cggacggaat atatcgagct gacggctctg actgtagagg agacgtcggc atttttcgag      240
gggctcagct atcgggaagac gatctacata taagcanacg gctgctggag gagaaggcaa      300
gcggctacgc ttcctgctcg aagtgggggtt ggggtatctg acattgaccg cctgtccaat      360
acgctctcgg gtggagagag ccagcgcata agctggctac gcagctcggc agcagcttgg      420
tgggttcgct ctacgtgctg gcgagccgag tatcggctctg catcagcgag atacgcctcg      480
gcttatcgggt ttctgaagcg actgcgcgat ctgggcaata ccgttgtagt cgtcgagcag      540
acgaggagac aatccgggtca gctgattata tcatcgacat agggccgagg ccggccgcca      600
aggcggcgaa gtggtctatg ccggcgagta tgaccgctag acaaggatac tccgggctat      660
acggcggcctt atctgacggg acgagaaaaga tcgaactgcc acgcctgcgt cgtccatgga      720
actcatatat cgaagtcggg aagcctcgaa gcacaatctg aaaggggtga atgtccgatt      780
cccatgcacg tgctcacggg ggtgaccggg gtgagcggat cgggaaagag tacttggtgc      840
gcgatctttt ctacgaagga gtaaaaagga ttctcgaagg agcagcacac aagggttagc      900
ctgcgaggggc attgtcgggg acatcaagtc ttccgagaca ttcagtacgt ggatcagaac      960
aatttcggtc gcagcaccgg tccaaccggg tcacgtacat aggtgcttac gatgatattc     1020
gcaagctctc agtgcatggc cactgtccaa acagatggga taccagccct atttcttcgt     1080
ttcaataagg aaggaggccg ctgcgaggtc tgcaaaggag agggcagatc gtggtggaga     1140
tgagttcat ggccgatata gtattggagt gtgaagggtgt catggcaaac gtttccgcaa     1200
ggagattctc gatgtggagt actgcgcgcg aatatttacg acttgctgga gatgacggtc     1260
aatcaggccg ttgatttttc accgatcatc cgaaagccag ctacacggac aagatcgtgg     1320
agagctcgaa tgtcttcgag aggtcggact cgggtatctc aaactgggac aggcagcagt     1380
acactctccg gtggggaaaa ccaacgcgtc aagctggctg ctatctggga caagccaaac     1440
ccgcacccac gcttttcatc ttcgacgaac gactacgggc ttacatatcc atgatattcg     1500
taccttgctg cacgcaactg tgctcttata gacaaagggc attcggtagt ggtggtagag     1560
cataatatga gataatcaag agtgccgact gtatcatcga cttaggccct gagggtagag     1620
tgccgggtggt tatttggtcg caacaggtag gcccgaagag gtgatggatg cgatgcctcc     1680
tatacgggaa agtggttgaa agagatttg ggaaagaaca aagagggtga acatataatt     1740
ataatagtgt agtatggtag gatcgatttg ggttcgattg taatcgggtgc tttggccggg     1800
tatatagccg gcaattgcgg cgagggaagt cattgggctt gttgctcaat attctcatcg     1860
gttggtgggt ggtgtcctgg gcggatacct tctgaatttg ataggcatat aaatggtgga     1920
tctttcttgg cgaggcttgc tacgtctacg ctggggggcca cgttctactg ctgctggctg     1980
acctcctaag caaaaagcgt tgagattggc agctatctgt ttggcaattg gggggtacag     2040
cgccggttgc ttatattatt gagtgtctaa ttataaaatg aatgcaaaat gttaggatcg     2100
attttagttc cattattatc ggtgcattag ccggttttat tgcaagtaag ttacggaggg     2160
ccgatcgtaa ggcttatgct caacattatt atcggggttg a                               2201
```

(2) INFORMATION FOR SEQ ID NO:425

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 984 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...984

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:425

ccgatcgaat	gcctcttcac	gatggacgaa	agagacgggt	atgaccgggtc	gatgaaccta	60
aagcccggat	ttttcaatgn	aaagatcctg	ctcaacctga	cagcgaagac	gaaggagagc	120
tcttcatcgg	gtgcgcggga	ggtatggaac	catggtcgaa	tttgcttacg	aaaagcgcga	180
agcgacagac	gactattcta	tttcaaggta	aaggtcagcg	gtctcaaagg	cggctactcc	240
ggagggagat	tcacatcggt	ctcggcaatg	ccaacaagat	cctgactcgc	tatcctatgc	300
tcttgagcac	gaattggatt	ggaagctctg	ctctttccag	ggagaaacct	gcacaatgcc	360
attccgcgcg	aagctcatgc	cgttatcggc	ctaaggctga	tcagaaagaa	cgtgcacgag	420
ttatcttgaa	cgaactcgct	gtgcagtggg	ggacgaactc	aagcgagtag	atccgggtgt	480
gaagctcgaa	tgaaatcggg	aggaaaagcct	gcatatcgta	tcgattgtga	cacgaagcgc	540
gtcttgttcg	cgccctgtat	gcttgccctc	acggcgctta	cggtatgacc	atgacatcga	600
aggtttgggt	gaaacgtctt	caaacttggc	ttccgtgaga	tgaaagaaga	tgataagatc	660
tacgtggaga	ccagccaaag	aagctcacat	cgtctcttat	cagcgatata	gccaatacag	720
tggcatccgt	attcggcttg	ccgatgctaa	aatcagcttc	cgcgatccgt	accccggtatg	780
gaaaccaatc	ccgattcgcc	gattttgaaa	gcggcatctg	agtcgtatga	gcgatttttcg	840
gtcgtaaacc	tgctataaaa	gcaatccacg	cagggtttgga	gttgggtctct	tcctggataa	900
atacccttat	ctcgatatgg	tttcattcgg	cctaccctcc	gagatgtgca	ctctcccgtta	960
gagaagatcg	aatcaagac	gttc				984

(2) INFORMATION FOR SEQ ID NO:426

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 506 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:426

gtagcctctc	tcattcaatt	tatgagctaa	atccaaaatc	aaatcacaac	tttatcaggc	60
atgatacgag	agaaaaagac	aagacgcaac	accttggagg	agtataggga	gtatgacaat	120
gcaagggaga	aaacagagat	atgtcctgaa	gttaggcata	acttttacat	tctctacacc	180
ttgcccacac	aaagcacttt	cattgcttgc	ccttcgacca	aaagatatgt	caaacttttc	240
aaaactcaac	tcggtatctt	cccttctcaa	cttctaaatg	aagatcccc	cctataccca	300
aagaacaatc	ttacgcttag	gaaagacaac	tttcaaaata	cgggcaacca	atacacattg	360
ccataactag	ttgagaaaat	tatgggagta	ttggatttat	taataagata	aaaggcaatt	420
tccacaatcg	ccaaggctta	gacgactccg	ataggtatca	actataatta	gtttgncaac	480
aaagtcccta	gccttttcgt	taggaa				506

(2) INFORMATION FOR SEQ ID NO:427

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 909 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...909

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:427

aaacggggttg ccaagtgact gattgccggt ctatggtata ggaatagcga gttctcccgt	60
ggctttgatg aactgagaga aggggacgcc gacgaaatct tgggtgcgct gtacttcttg	120
ccggctgcca gatagatcag attcagggat tgcctgcctc ggatagtcgg aattgcatcc	180
aaagatgatg aggactttct ctgaaacgga tttgttgaac gtatagatat accccatttg	240
agcaagaact gactctgaag gctgagcagc aggggaggat tgttcgccgt aatgcctgga	300
aagtttctgt ctgatgcccc aggagggtgt agttgagctt gaggggaaaa tagcatgccg	360
gtgttccttg gagggctgaa attcgtagggt ggcgaaaagc cgaaagagta catgctaaag	420
tagtgtgccc tgttcagcgc gtggcagaag cctgaaaagt cgtagtcgtg gggtagtaat	480
agtatttatc agcagaccgg gaaatacaat cgagggaaac gagagggtca cggccgtatc	540
atgttgtagc aattttatc gatcagccga ttgctgctat ttccgggaga ttgccgggtc	600
cccactcata cgatccaccg atattccaag aaagatttct cctccgccga atacattgcg	660
ccgagcaaga gcaaaattca gtccggaccg atgaagtcgt tgcttttgct cgtgaacaag	720
gtctctaata atgcacccaa gggttggttag cagtcgcaca tccaaaaggc	780
cggaatggaa tcgcgttgca aaaaattgag atcgataacg gagaaggctc ccaacgagcc	840
aaggatttgc gtgtcgtctc atcgtctttc tgccgataca gatgccggag aaagaaacga	900
aagcgtttg	909

(2) INFORMATION FOR SEQ ID NO:428

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 549 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:428

gctccatagg	attcattgaa	aactgcaaag	tcgaaaagct	taccgctacc	aaaagctcac	60
ggacaatacc	gagaacagnn	aaactgaggg	taaagcccat	ccgataccga	taccgtcgaa	120
catggagtgt	agcagacctt	ttttcgagca	acggcttcag	cacgaccgag	tacgatacag	180
ttcaccacga	tcagtggatg	aagataccga	gactcttgtc	caaataccggc	atataagcct	240
tgatagcatc	tgcaatatcg	tcacngaaac	ctgcaatgat	gacaataaaa	gccggatacg	300
aaccatatcg	gggatgagat	tcttgaccaa	ggatactacc	atgtggagca	gatcaataca	360
aacatggtgg	ccagtcccat	actcataccg	ttatggccga	cgttgctcgtg	gccaacgtag	420
gacacatacc	gaggaggagg	agaatgtcgg	gttctccttg	ataatgccgt	ttataataac	480
actcaaattc	tactcattgc	gcttcgggtat	tatctgngtt	agtattatcg	tagaatcagc	540
ggagctgcc						549

(2) INFORMATION FOR SEQ ID NO:429

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 428 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...428

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:429

ggggaaaacg	actctgacgg	aaaaattcct	gctcttcgga	ggcgccatta	tgtggcagga	60
gcggtcaaaa	gcaacaagat	aaagaaaacg	gctaccanga	ctggatggag	atagagcgtc	120
agcgtgggtat	atcgggtggca	acttccgcat	gggattcaac	tacaaggact	ataaaatcaa	180
catcctcgat	acgcccgtca	ccaagatttt	gcggaagata	ctttccgtac	gcttactgct	240
gtggaagtgt	gatcatcgtn	atcgactgcg	ccaagggggg	cgagacgcag	acnccaagct	300
gatggaagtt	tgctgatatc	gcaagactcc	cgttatcgtc	ttctcaataa	gctggaccgt	360
nagggacagg	atcccttcga	tctgctggac	gagtggagga	agagcttcag	atncgngtgc	420
nggcactc						428

(2) INFORMATION FOR SEQ ID NO:430

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 397 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:430

```
gcgaataggc ctgacaacac cgtagccata taggctatca gcacggtgaa agaagcatcc 60
tgccggcacc tttcccgatg tccgcaatag ccaccgtccc aatccgagga taatcagcgg 120
aatggagaag ccgagcagtt cgctgaaaga gcattgaacg tgacgaagat ccgaataaac 180
gggaagctga agagggtgccg aagccgatac cgaggacaat ggccaatatg atcttgggca 240
agaggcgatc cgtagtttac gcatatgggtt ggggggttgct tgatcaagaa gatttttggt 300
ggaaatatag cggaagtttag catccagcag acgacgggca gcgcgaaact cctggcacga 360
tcttccaaca cgtctcttcg actccgggtat gactctg 397
```

(2) INFORMATION FOR SEQ ID NO:431

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 844 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...844

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:431

```
ggtttctgta ccaaaagtag tccattctta tcgaatagag ccatcggcac gcgaaaggcg 60
aatcaagaaa caggaaaagg gtacaccccg gattcttccg cattataatc caaggtaata 120
caggatgcac gtctatacgc ccatatactt gccatcgaca ttgcggatgg aattatgtac 180
ttgtttctca taagccttca ttcttttagg atagatttaa caatatgcta taaagacata 240
aaagtgtgtg cctattcata atttacgaac ggcaattcgt caaaattccc caccttgccc 300
tgcactatca gggaaagaac gatatgaaaa gactgataac aacggagcag cctttctact 360
ggctgctaca ctctctgcct gcaacggcaa tacacaagtg aaaccaagg cgatcggact 420
gaacaggccg aaacggtaca accgatctct tctcggccga ctcggttac accttcgtgc 480
agcgtcaggt aacttttggc cctcgcattc ccggcacagc tccgcatcgt gcctgtggaa 540
ttggctcgtg gccacgcttc gcagctttgg tgccgcggtg caagagcaac agccgaaatc 600
aaagcgcagtg atggcaccat gctgcccatt cgcaatacat agcctcatal cgccccgaag 660
ccaccgggcg tatgctactg atggctactg ggatacgcgg ccggtctgcg atcaggatgc 720
caaccccgct atgcaacaga gaccttcgac ggtgcggacg atggcggcag cggaattagg 780
cgttttattg gagatagcgc gctatctggg acaacagaaa gatttgggca tggcatcgat 840
attg
```

(2) INFORMATION FOR SEQ ID NO:432

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 723 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...723

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:432

gccgagaaag	agcaaattgat	tttttcgagc	gtaaaacgga	cgaattgcct	tcgtgttttc	60
cggaataatg	gaaccataaa	tttttcgttt	tggtttgaaa	cttttttctt	ccggcgcggg	120
aagtgaaaaa	ttctcgcgcc	acgtttttcg	ttccgtctga	aacaattttt	tggaaacgtaa	180
aaactcgaag	agggcggggc	ggatcaaaag	aaaataagtc	cgaatcggag	gaaaaaagca	240
gcaagcaatg	caggttcaaa	ggcaagttgt	gtcgtttttc	aggcttctcc	atttctgtat	300
aacttccgtc	taatcccgat	cttggcagca	gtatcgggtg	agtgggactt	tcggacaatt	360
atcaacggtg	ctcaattcat	tatctttgca	gcatttagat	acgaaaaaat	aatctgaaca	420
ataatggata	gacaattcaa	ggaactctta	ttactacggc	cctcccgtat	gccaacgggc	480
ctgtacatat	ggacacttgg	ccggtgtcta	cgttccggcc	gatatatatg	cacgctatcg	540
cgattgcgtg	gcagagactg	cctgctgata	ggcggttcgg	acgaacacgt	gtacccatcg	600
ccctgaaagc	caaagccgag	ggatgcactc	cgcaggagtg	gtagaccgat	accacgaact	660
gatcaagccg	ttcgttcgaa	gggctggtat	ctcttcgaca	tataacttaac	gtaccacaag	720
cga						723

(2) INFORMATION FOR SEQ ID NO:433

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 562 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...562

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:433

ttccttgatc	ttcgtgccgt	cacgatagac	tgtataggta	tagcttgcag	tgaatcgtct	60
tcgacttcca	tatcagttcc	atctcccatt	ccggcgcgcg	catcgtgaaa	ggtgtacttc	120
ttgcctgctt	cgaatgtgaa	atcgtcaaac	gtgcaggctg	gttgcctcca	tctcctgcga	180
tccacatctt	tccggagcag	gttccggggt	cgtaatgcaa	ta'gtcgtaaa	caccacgggg	240

gattaaactt	caccctgtcc	tgtaacgata	atattctgtg	tagtaacaac	aggacggcat	300
tggccgggat	caaatactcg	aagttcgcac	tgtaaagatc	ggagaagctg	ttccggtaaa	360
gagaggaccg	gttgccggaa	tgacacttcc	gatgtattgt	gatcggcatc	caacaagaac	420
tggtaacccg	tattgtctcc	catacgttgt	ctgctgcgag	cacaaccttg	gcttcgttgg	480
cacgtacatc	tttgcagggt	cgatcgtaac	gaaaagaccg	tctccgatcc	gttttactta	540
cgagaacctt	ctgtcttctt	tg				562

(2) INFORMATION FOR SEQ ID NO:434

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 569 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...569

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:434

ggcacatcta	tctcttccag	caaatcctca	gctacgggta	aaaggagttt	tttccttcgg	60
gcgtagttat	agacaaaann	acattgagcg	tactctcgcc	acatcatcga	ttgtccctac	120
gaaacaacct	tctcggtcga	ataccgtaag	ccgatgaaat	gttcccaggt	gaattcgata	180
gaatcagtat	cgaagttcgt	cgttccataa	agagagacac	accggtgtac	tgctccatct	240
cctcctgctt	tcaataccgg	caaagcggaa	ncaaagtaat	atcatcgggt	ttctacggta	300
gccaataaga	cggaacggaa	ccggcaatgc	atccagctcg	aaaagagaaa	caaccgctct	360
tcttcctcaa	agagcgtact	caaatcggct	gtagacgagc	gttgcactct	ccctgaacgc	420
catgcggctt	acccagcaca	cgatatgctc	caatgaatcc	aaatcgatca	taaagcatca	480
aaggcgagag	tacgtgcgcc	gatagcggtg	aggcgagtat	ctatggattg	gtaaccctt	540
cgatctgntc	tacgtttgtg	gatgatact				569

(2) INFORMATION FOR SEQ ID NO:435

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 902 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...902

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:435

tggcgcttac	aaaacgaaca	ggatccggcc	aaacgtcagc	agatcatcgt	aaaattctca	60
agctgtatga	tgaccgtgtc	aaatacttcg	gagaagacc	aagtatggaa	cggactatat	120
catggccagc	aaaatatcgg	actacatcag	tatatgggcg	ataaaacgga	ttatgacaag	180
gtttatgaat	ggatcagccg	accatcgatc	agcatggaga	gaatgctacg	cctcgagctc	240
tattcattat	gcttactcct	ctctgaacaa	agctatcaga	aatgaggcat	ggcagaaacc	300
tatattaagg	attatacgtt	tgcatcccag	gccatggaga	agcgttggaa	gtggccgatg	360
agaaaggcaa	agagtttatc	caaccgctga	aactcagatc	gacgaactct	tcgcccagag	420
tggtcttgca	gactgcaata	cttgggtgaa	atgtatggcg	ataagctgga	ggaaaacaa	480
acggatacga	tttcctgaag	aatatgctcg	gcatgttcca	cgcttccgac	tgcgagacaa	540
tccgctttat	ttccaagcca	ataaatacct	ctttgccgta	cagccctcgc	tatagctgct	600
atgggccttg	ccaaagaggc	gatggaagga	aatcgatcaa	tgaagccagc	gactatctcc	660
aaaaggctat	cgaactaagc	aagagtccaa	agaccgtgca	gcctgcaact	atacgttggg	720
tctgttggct	atgaacaggg	tagttactct	acggcacgct	cttactgcaa	taaagcactg	780
gccgagatcc	tgcgatgggc	gatgctctta	tcctgattgc	ccaaatgtat	gcacaacggc	840
caatactgtc	ttcccgggtga	tgctatcagg	cacgctngt	attttcctgc	cgtggacaaa	900
ct						902

(2) INFORMATION FOR SEQ ID NO:436

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2107 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2107

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:436

ggccctattg	cctttttggg	gatagccgta	cctcacttct	cgcgcatcca	ttcaaaagtt	60
cggactaccg	catactgctc	ccgggcacca	tgctgtgcgt	gctctgctga	tgctcgtgtg	120
cgacatgac	acgcaggtag	cgggcaaggc	tttgtattgc	cgatcaacgc	catcacctcg	180
atgattgggt	ctcccagata	atcatgacga	tcgctcgcaa	ccgcaaaaag	cgtttaatct	240
tcaacgaaca	ggcgaatgac	cataccgaca	atgtgaccct	gacgggacta	tctacggata	300
ccgaagcaag	aaaacggagc	gcatacgtatc	gaagctaata	gactttccat	gcttaatggc	360
gaactggtaa	tgctgatggg	tccgaacggc	tgggcaaatc	cacgctcatg	cacaccatcg	420
caggattact	gccacctatt	tggggaatat	caccatcgca	ggacgcgaca	cacacggtct	480
ccgcatgaga	agaaagccaa	gatgctcagt	ctggtagtga	ccgacaaaat	agcagcgaca	540
atctgactgt	tcgggatatt	gtcgtcatcg	gacgctatcc	ctacgtcatt	atcggggtag	600
cctgaccgca	aaggacaagg	agattgtgaa	tgaatcgtea	tagcatgccg	actgatggga	660
ttcgaatcgc	gccaatacgg	ggaattagcg	atggagaaaa	acagcgtgta	atgatagccc	720
gcgcttttagc	ccaacgactc	ccgtgatgct	tcttgacgaa	cctacggcac	acctcgacct	780
gccagccgtc	tggaggatga	catcatgctg	cgcgaaattg	cacgcaaaac	gaaaagagta	840
tcctcgtttc	taccacacgaa	atggatctgg	ccctgcaatg	ggggacacgg	tatggctgat	900
gaacagccaa	ggggagattt	gtcgtggggc	acggaggatt	tggtagtgaa	ccactgtttt	960
gaaaaagtat	tcggcaacga	actctttcct	tcaatataga	caacggagcc	ttctccgtca	1020

aacataaaaag	gctacacctg	tttctgtaga	aggacagggt	gctgcctaca	aatggacatg	1080
agtgctttgc	accggaatgg	ctatgtggaa	tctgcagatg	cctccgacgc	aaaatcaccg	1140
tgggagaggg	ctgctggatt	ctgcaggagg	gcgattctcg	aaaagcttcg	actccatcgg	1200
ctccttgcta	caaacgctgc	acgctaccac	gaatgaatgc	ttgtgaaaca	aacaattata	1260
tgcaaaaccc	tacgtagatt	tcgacaaaga	aacgcctctg	tttttttagtc	ctatgggcga	1320
tccctttacc	acttgaaaga	aagtatgatc	gttcgcttcg	caggacgcag	agagtcgtga	1380
gcacctgcaa	tctcaacggc	ggctaccgag	aagacctccg	cacgccttca	acaacagttg	1440
cgggagggac	cccgcagtaa	tagccaaacg	tctgtaggga	tgcgaggaaa	gaccatgatc	1500
gaacactacg	ccgccttagg	gaagaattgg	gtctgcctct	tgacaaaaca	acgggcatgg	1560
gtaccgctct	ctgatcgaaa	atcggcgac	ctcctctcgc	caataccacg	gagtaacgtc	1620
atggcggttg	ccacggcagg	tatagatgta	aatgggggac	gcgcagagaa	cctgccgcat	1680
acaacgaatt	tacccaacaa	gacctgatta	agccggtacc	atcaacgtat	tcctgttcat	1740
cgacgcctca	ttggatgcag	gaacctgaca	cgcgcctcgc	tcaccgccac	cgaagcgaaa	1800
tcggcagccc	tgcggaactg	atggcaaaca	gcatgtattc	agaagatttg	gccaccggtt	1860
cggaaactgat	tctctgatng	ccatctgtaa	taaggagtcg	gagatagtcg	tcagaatagt	1920
ggcaaacacg	tgcttttggg	cgaaatgata	ggccaaagcg	gaaagaggct	attacggaag	1980
ccttatcccc	acagacaaag	atgacccttc	acgtcaggct	tcgatcgaat	ggcagaccaa	2040
acgctacggn	ataacgagga	agcgatcgtc	tccgaatgcc	tgcgcttgta	tccacatctg	2100
aaaaaag						2107

(2) INFORMATION FOR SEQ ID NO:437

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 719 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...719

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:437

cctttttttt	acgattttcc	cggccttcat	cctcgccgct	actgctttgc	ggcttgtgga	60
gggggtactg	cttcaggctc	cgatcgtacg	ctggctgtac	catcgagcca	cagaaatact	120
tcacgcagtc	cattgcggat	aagtcgggca	ggtgggtggca	ttggtagccg	ccggcagcaa	180
tccggaggaa	tacgaccttc	gcctaccgtg	atgaagcggt	tgtccgaagc	agatgcctac	240
ttctaatagg	aggactgggg	ttcgagcaaa	gaaatctcgc	tgccattcgg	gacataaccc	300
taagctccct	cttttcgaaa	tgggcaaagc	cttggcggat	gccgaagtgc	agatctccac	360
ggctcctgca	cagatcattc	tcatacagac	ctcatgccca	tgatccgcac	tattggagca	420
gtgtggtagg	ggcaaaggca	ccagtcgtgc	tgcatacgac	gcgcttgtgg	agctttatcc	480
gaacgagaaa	acaaatggga	caaagggcac	gaccgtctca	acggacgtat	cgacagcgta	540
agagactcgt	cgataccatg	tttgccaatg	gcaaagcaga	caaagcctcg	tcatatatca	600
cccacgntc	agcttttttc	cccaagagtt	cggcctgggc	agatcgtcat	agaggaagat	660
gggaaaagagc	ctacggctgc	ccacctcgtc	gtgtggatcg	atcaggcacc	gtgccgatg	719

(2) INFORMATION FOR SEQ ID NO:438

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 492 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:438

cactattgtc	cgggtttag	ccacggagtt	gtgcacaaac	tcattcgcaga	gtaatcgaag	60
aaatgggctt	gacggaagaa	actatcggca	tcgcccccta	ggatgctcag	tattcgccta	120
tcgctacatc	gatatcgact	ggcaagagct	gccccacggc	gtgcaccggc	tctggctaca	180
gcagtaaagc	gtctgatccc	tctaagctgg	tatttacata	tcagggcgac	ggagacttgg	240
ctgcttcgga	acagccgaga	ccatccacgc	agccaaccga	ggagaaaaca	tngcattata	300
ttcatcaaca	acggtatcta	cggtatgacc	ggaggtcaga	tggtccgact	acccttgaag	360
gtatgggtac	cggntacttg	ccctcaggga	agaacgtaga	gctgaaccgg	tattccgctg	420
aagattgccg	atatgcttgc	tttgctcgac	ggtacttggc	tcgtaacgcg	ccaagaaccg	480
tgcaaatgc	gc					492

(2) INFORMATION FOR SEQ ID NO:439

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1699 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1699

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:439

gatttctttg	aaagcatatg	atgactttct	accatcggca	cgcaccaaca	cagctctccg	60
gaaggcaata	catcggcaat	tatggcatcg	aaacgccctc	cttatttttg	aagggatggg	120
accctaccct	cctgtaaaga	cactgcaata	acgagtgtga	agctggtcgg	cagtatgctc	180
ttctatgtgt	ctgtaggtga	acgcatctcc	tgcataaaag	agcggaatat	ctctatacga	240
tctacgaatg	ccccagaatg	atccggaccg	atgtaggatt	ggggagatag	ctcgatagtc	300
gctttcgttg	atattgagac	cgacaccag	aatgctgtag	tcggggttgct	gcccgtcagg	360
ctgtgctcga	tcagtatgcc	tgctattttc	cttctccata	gtatatatcg	ttcggccatt	420
tgatgctgag	catctcggca	gaggaagaag	gtcgtagagt	gtatggagca	cggagagtgc	480
acacaatcgg	agagatcgaa	ttgctgctgt	gcaggaagca	tggtcggcct	cagcagaacg	540

aaaagggtcag	gttcaagccc	ggagacgcga	accagctatt	gccctgcttc	ctcgtcccg	600
agtctgattg	tctgtcatga	ccacgggtcca	cgcagggtggt	cgggatcctg	catcaaaaaga	660
tcggacagat	agggagttgg	tgctggccgt	ttcgggcaga	tggatcagat	acccttcaga	720
ccaactgttc	ttcttgactc	catcgaaagg	cggttgtgta	cggatgtatt	tagggagttt	780
ggatcaacga	gagcgtacga	atgtcggatg	agccgtgcaa	tcagatcggc	agggcatccg	840
agtccaaagc	tacgctgttc	caatgtcgtt	tgttcatatg	aaagcccccg	tgataccctc	900
gtagtgcata	cttaaagtgt	cggaccgatc	ggatcgcatt	tgagtgcgat	gactttcttt	960
tcggaatcaa	ggggatatcag	gcaaacattt	tgccggctac	tttcataacc	aacgtaacat	1020
catcgaacgg	aaactctcct	ccacctgtgg	cagtgacaag	catagctctc	gagcttgctt	1080
atgtccatat	attattttat	ttttgctacg	ttatgaattt	cgctccattt	tgcttggggc	1140
acgggtctaac	aaaaataatg	gaaaaactca	tttttgacac	aacaatccac	ataagctcaa	1200
cgagattcgt	catattcttg	aggggaaggtg	nagattgtcg	gnctggacga	aatagggtgt	1260
cggnaggata	ttccgaaacg	gccgacacan	tacagggaca	atgctttgct	caaagcagaa	1320
tttttcacaa	acgatatggt	ttaccttgct	ttgctgacga	cacaggcttg	gagtagaagc	1380
tcttgacaga	gcancggcg	tccactctgc	acggtagcga	gagaaccgac	caatgccnat	1440
gccaatgtac	ggaaactact	cnaagcattg	gcagtgtacc	acatcccaga	aaagcatgct	1500
tccgtaccgt	gatcgcccta	tcgatgatca	tggaaaacac	ttcttcgaag	ggaagatcga	1560
aggtaccaag	catntgaatg	cagaggatcg	ggcggcttcg	gctatgacct	cgttttctcc	1620
cggaggggaca	cacgctcagc	tttgagaaa	tgggagaaga	aacccaaaatc	aaatcagtca	1680
tcgtgctttg	gcgggtggca					1699

(2) INFORMATION FOR SEQ ID NO:440

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 917 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...917

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:440

ggctgcgatg	tctataccac	tctcgacatg	gatatgcaga	gcatagtcga	gtggagttgc	60
gcagcaagct	cgaagagggtg	cagggagaaa	gtggaacccc	atcctcatgg	aggtagctac	120
agggcaggta	aaggctatca	ccaatctcag	cgcacgccct	ccggcggata	tatcgaatcc	180
aagaactacg	cagtagcgat	atgtcagaac	ccggttctac	gttcaagacc	gtgtcgatga	240
tggtacactc	gatgccggca	ttgtgcatcc	ggaggacatc	atcgaaacgg	gcaagggtctc	300
ttctccgtag	gcaagcgtag	tgtaagagac	cataatgcac	acaaggagggg	tatggcccc	360
ttacggcagc	tcagacgatt	tggtactcaa	gcacgtaggc	gtagccaaaa	tcattctcaa	420
aggctttgcc	cacgatcccc	aaaatacgtg	gaggcgggtca	ggcgaaccgg	tatcacggac	480
aagttccgtc	ggaaataacc	ggagaagctc	cggccgtagt	gcgcaagcgt	gccgacaatc	540
tgaccgctgg	tatggcacga	cccttgcatg	gatgtcattc	ggatacgaac	ccaaatcccc	600
ccgatccata	cattggcttt	ctacaatgcc	gttgccacgg	tggtagaatg	atgcgtccct	660
acttcgtaac	gaaagtgatg	gatagaggga	ggctcgtacag	gagcaccggc	cggtagtatt	720
acgcgattcc	atctgaagca	ctctacgctt	atcgccatac	aggatatgct	ctcgaacgta	780
gtggcaaaagg	gaccggctcg	ccggtcaaaa	gctctacggt	aaacatcagc	ggcttgaccg	840
gtacagcgca	gatctcacag	ggcaaaagcg	gttatcgtgc	agtggcacca	tgcacttggt	900
attctttctg	tggttat					917

(2) INFORMATION FOR SEQ ID NO:441

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 680 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...680

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:441

cggactggca	cccgaacgac	aaggtgtctt	tcttcttcgg	acgtcagtag	cgcgtttcgg	60
agggatagaa	tacgacatga	accccgtaga	gatctaccgt	acagcgacct	tgtggattac	120
atgacctgct	atacttcggg	cgtgaactcg	catggaactt	ccaccccgaa	cagcagctgc	180
agctacaggt	actcaagctt	acaacaaccg	cttcgccgac	cgctaccacg	tgacaccgga	240
tgctgtaccg	ccacgagcta	cccgtctctc	tactcggcac	agtggaacgg	tacctcctcg	300
gaggagcact	gcataatgct	tacgccgtgt	cgatggctca	tcagcccaag	agcgtaatat	360
gtggtaactt	actgcgggca	acctgttcaa	tcgggcaaac	ggatcaacgg	atacctcgac	420
ctcacctact	cgatcgaggg	atggacgaca	aaggcattat	gactgctcgc	tacggcaagg	480
gcaagaccct	acggacgtca	agtactatgc	tctgggtatc	aagtgggaact	tccgcatttc	540
gatcagggtca	atctcttcct	caaaggcatg	tacgagaacg	gctatgcgct	gcccataacg	600
gcgagagcag	ccacacgcgc	caactcctac	ggctataggg	aagggtggaa	tattaccctt	660
acggagacca	actttccgct					680

(2) INFORMATION FOR SEQ ID NO:442

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 855 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...855

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:442

ctgggttata	acggtgtttt	tttggctttc	actcgccaca	atggtaatcc	cttgtcgttc	60
------------	------------	------------	------------	------------	------------	----

ttggccagct	ctttgatcaa	ttccatcggg	ataccgaagg	gtagcgtacc	aaaacggctg	120
cagagcggtc	gtactcagcg	atagcaccac	aggacctgca	gggggattcg	tttcctggaa	180
tgctcgttgc	atctctctgt	tgcaaattga	ccgtttgttc	ggtctgcttg	catttgcgtt	240
tgggcattgc	gggcagttgg	aagagtccca	atgccagaat	caaggcttta	gccttaaaag	300
ctttttcatt	gtttgatatg	ttttatgatg	ttatgaatat	gttctgaaca	tatgataaga	360
tctcggggaa	ataataaaga	gggacatggg	ccatcttttt	gcgaaatata	catggaggga	420
tttaccttcg	gtttttcacc	tcaacccgat	aaccgcccgt	aaaattagaa	gaaatcatca	480
atatgaaata	aataaacctg	ttttcttgct	ttttgagccc	tttgcaaaaa	gagaaggctt	540
caagaagtat	cttttcggta	tcgtttttgc	tcacctatag	agtgtatcca	caagtcattg	600
aggaggcttt	agaggatttc	atatctataa	tgacactaaa	aatcagtcaa	ttgacaatga	660
aatctcccgg	aaaatgccgt	gcgacatctt	atctatcggg	ttcacagctc	gcacggaacc	720
tccacttccc	gatccgccat	ccgacacaga	gcagatagca	tcttccatca	atagaccata	780
gtatctctca	taggagacca	taatatcctc	tcataggaga	ccatagtata	ctccatgtga	840
gaccatagta	tcctc					855

(2) INFORMATION FOR SEQ ID NO:443

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 904 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...904

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:443

gtcgttgatc	agtcccacta	cgcgacaacc	tttaggcgta	tgtttacgga	gaacttactg	60
cttggcttga	agattatagt	cttggagaaa	tttgggagaa	aatatcattg	gtggacaacc	120
ttgggctaag	tagtgagatg	gggaatagaa	aaaacggctt	gtttttattg	tcgagggaga	180
tacagagggt	gccttttcca	tgaacgtgtg	atcccatacc	taatgagcaa	aggctaccgc	240
aatgcatgaa	tgcccagaag	atcaccacca	ataaatcgct	tcataaaaaag	ggtgtatagc	300
ccgcttcgaa	tacttggaaa	atgaagttcg	aagcgtagca	gccaaggaga	tatcttgatt	360
actactttgt	tagacttctt	caggctacca	acaattttcc	taactatact	gcggatagcc	420
ataagatttc	ggatatagag	caggggttag	acaaggattt	gatggggtta	atgtttcgct	480
tttctatcca	atattcagcg	ccacgaacta	gaggcactca	tgtacacgag	tatggatggt	540
ttgagatcgt	ttgtgacgaa	aaaagagagt	tagatcagct	gagagcaatg	tagagggtta	600
cgataatccc	gaagatatca	attctggggc	tgaaacccgc	catctaagcg	ccttatcaag	660
attttcccaa	aatatgagaa	ggttcttatg	gagaactgat	atttgaggct	ttggagattg	720
atgctatacg	agctcatgcc	cccgtttcaa	cgattggata	caaatccttg	aggacggatt	780
aaagaaggat	acttttaagc	cagatttttt	attatacttt	tttaagggac	tttagctctt	840
gtactctttt	cgataaagaa	tatcgctcaa	tctatgcttg	cacgcccgcg	aatgcgtaga	900
cttt						904

(2) INFORMATION FOR SEQ ID NO:444

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1071 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1071

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:444

```
gcgtcatgaa tgctgcgaaa gcttttagccg agatcgggtct ggaatcgggg aacgaatcgg      60
tatctattcc cccaatatgg tacactgtct gtataccgggt tgggggcctt cgccatgcgg      120
ggtgtagtag tgccttttgta tgccacagct caccggaaca gttacgggtc atcgtggagg      180
attcatccat ggagacttgt ttgtcggaga gcagttccaa tacaacaatg cttatcgggt      240
acagaagaat atggtacgct aaagcgcata gtcgtattcg atgagcgcgt ggtgtcaatc      300
cggaggataa gacttcgaaa tacttttccg aatttggtcg tttggtgatt ccatgccgaa      360
cgagacgaag gtcaaagtct cttctcgca agcattccct ccgatccggc actgatcatc      420
tatacatcgg gcacttccgg tggagcaagg gcgtcctcct cctgcacagc aatctgatgt      480
atcagatgaa gtccatagcg agcatatccc cgtctatggg ccgggcgagc tgctgatagt      540
ttcctgccga tgagtcatat tttcgaaaag gcatggacac tcttttgctg acgacgggaa      600
cgaggattgc catcttgaga gatccgaaga aagtattgag gcactacctc agatacgccc      660
atcgctcatg tgcaacgtgc cagcctttgg gagaaagtgt atcagggcgt gaatgagaag      720
atggcctcct ctcccgcata ctgaaagggt tctacaggcg tgctatggcc gtaggccaac      780
gctacgtctc gactattgga atgaggggaa gcgtgcgcca ctgcttctga gtagcaatat      840
gccttttaca actgcactat ttttaccctg ctcaagcgcg tatgggacta cagcgagggc      900
gttatttccc cagcgnccga gcaccgctat cgatgagatc aacatcttcc ttcagtccgt      960
aaacattccc atcattgtcg atatggtctg tccgaaacga ctgccacggg atcttttctat    1020
ccgcagcgag attcaagatc ggctncatgg gcaaagtgat gccgggctgg a              1071
```

(2) INFORMATION FOR SEQ ID NO:445

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1999 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1999

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:445

```
cgcgcaaaaa aaagatggct cgctcatcgt tgtcattctc ctgcttgggt tgatgtcgta      60
```

catcgtcttg	cgcttgaaga	aatcatcatt	gtcgatgaat	aaacctgcat	gcgggcccac	120
tggatggaag	ccactttgat	gatcaacgat	ggtcgttgtc	gttaatgac	atattgatgc	180
cggaaaggcg	tatcactcgt	gcaactgatt	gcgacgctca	ttgatgatgc	catagcgggg	240
cataaaatgc	gcacctcgtt	gcctcgtccc	tgaatgggtc	gaggcaattt	gcgcaaacga	300
ccgatatgtc	cgtttccggc	aagtagggga	aaatttcttg	ggaatgtaaa	gaattttttt	360
ggaatccatt	cttttaccgt	catctacgtt	tctgcaaagg	tacaaaaaaa	actcatcggc	420
aagataagga	agaagtacgt	aagccctctt	agataagtat	aaaaagacca	aatacctcaa	480
gaatcgcact	caaaggctac	cataaacaag	ctcccaaaac	cagacctaaa	cggaggagac	540
aaagtgcgaa	tcgagagaca	aaccactcaa	ggatgagcac	ctgattatag	aggattaagc	600
caaaagatcc	gacaagatgg	gaaaagaaat	agccgaaaag	aaccggctgg	ggatcgccac	660
cttttcacga	gccaaaaaac	ggcgaccacc	ggccctaaaa	atgcggcgcg	taaaagtttt	720
ccctttgggtg	cgagaaagaa	aaattttacgc	gccacaacga	aaaaaatctc	gcgtcacttt	780
tcccaaaaca	cgaaccgcaa	tcgcagcttt	tgcggttccg	gaattgtcgg	agacggctga	840
ggttcgagac	agacggttgg	gcgtattatt	cgtactttcg	tgatgatttt	cacacgctgc	900
accggattat	tatccgggggt	tagtccacag	gtgtctgaat	ttggaatgca	gagaatcata	960
tagaatacag	aacgagaaca	agatgagcga	agagctgcaa	cacttgtcac	cgggtgaacg	1020
tctctatccc	tctccaccga	tatgaaagag	gttcccgatc	gttatttgca	cggggaaggt	1080
acgaccatga	gcagagtgat	gagatcggga	gagaggaaga	agactttttc	ctcctatgcc	1140
ggaggagggtt	tccaatgaga	tcgaagctcc	gtctctcata	cgcgggagga	ggttttgcta	1200
cactattggg	gctacccttc	gttcagcctg	tgcagctccc	gatcatcgaa	tccgttttgg	1260
cagggaagga	cacatgggac	tactgcccac	gggtggtggt	aagagtatca	cgttccaagt	1320
cccgggctgc	tactgcccgg	tttgactctc	gtggtaacgc	cactgattgc	tcgatgcggg	1380
accagatcat	gggattgcgc	caaaagggga	tcaaggcgac	accgttcatg	ccggaatgac	1440
gcgcgagcag	attatcacca	cgctggacaa	tgtatttacg	gccgctacaa	atttctatac	1500
gtttcgcccc	aacgtctggc	tcggaacttt	tcctcagccg	tctgcatgct	ctcagggtaa	1560
gtctgtctgtc	gtagacgaat	gtcactgtat	atcccagtg	ggctatgact	tccggccgca	1620
tacctctcga	tagcagacat	cagggaggcc	ctgccggatg	ttcccgattg	gcattgactg	1680
ctacggctac	acggccgggtg	atcgacgaca	tacaagcatc	ctccgatttc	cggagccgaa	1740
cgtgctgaga	aaaagctttt	tccgcccatt	ctgtcgtatt	ccatccgccc	gacggcagac	1800
aaagagacga	tgcgctgcat	atcctcagnc	gcgtggacgg	ttcggccgtc	gtatactgtc	1860
gcaccgagat	aaggcgcgcg	atctggcacg	cttctcggcg	aaaacggctt	ccggccgatt	1920
tctatcacgc	cggtctcacc	atgtgacacg	ggaaatacgg	aaaaaagctg	gatggaaggg	1980
gaacgccgga	tcatcgtct					1999

(2) INFORMATION FOR SEQ ID NO:446

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 465 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...465

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:446

gagccagatc	ttctttgggtg	agccagccat	tattgtaggc	aattctcctca	agcaggcgat	60
cttcaagcct	tggcgtttct	ctatgaccga	tacaaaaagg	aagcatctgt	cagtgtttgc	120
tgtgtacctg	tatccagcca	ggcaaaacac	gccccagttg	ctggagacgg	agctgcttgc	180
gaagcatgaa	ctcctgttga	ctgagggttat	ttccaattcg	ccccgcgcg	atggtttgac	240

atctgtgcta catcaagtac atcattggga tagaaataga gtcccactac tgcgagttgc	300
tcttcggctt ttccgggttt tcttcaggc tgatgaactt gccgtagcat ccacttccgc	360
tacaccgtat cgctcaggat cattcacata atgccgaaaa tggtagccat acccttttcc	420
gcatcgga ctgccgaccg agcatttggc tgaagccatg cccgt	465

(2) INFORMATION FOR SEQ ID NO:447

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 532 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...532

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:447

accaagacat ggcgagctc tgtcgggtgga tgggatattc atatggcacg aaaggctatg	60
ccgtctttac ggtggatagt cgcggatctg ccaatagagg gctgctttcg agcaggttat	120
tcacgtcgt ttggggcaga ccgagatgcc gatcagatgt gcggtgtgga tttcctcaag	180
agccaatcat gggtaggtgcc gatagaatag gactacatgg ctggagctat ggtggcttta	240
tgactcgaat ctgatgctta cgcacggcga tgtcttcaaa gtcggagtag ccgggggcct	300
gtcatagact ggaatcgata tgagattatg tacggtagc gtttttcgat gcgccacagg	360
aaaatcccga aggatacgat gctgccaacc tgcacaacga gccggtagc tgaaaggacg	420
acttatgctg attcatggag catcgatccg gtcgtggtat ggcagcattc actccttttc	480
cttgatgctt cgtgaaggca cgcacctatc ctgactctta cgtctatccg ag	532

(2) INFORMATION FOR SEQ ID NO:448

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 902 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...902

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:448

ggaaaactat	catcaagact	atttggatca	taaccctcgc	ggttattgta	tatcgatcct	60
tctttattcg	aattggcgag	gaaagccaat	ccggccagtt	ctacaagaag	gccgatgatg	120
cagagcttcg	tgcccggcctt	acccccggca	gtatgccgtc	acacgcaaca	atgccaccga	180
accggccttt	gacaacagta	ttggaatgaa	tttcgagaag	gtatttatgt	cgatgttact	240
acagggaacc	gctatttctt	tctactgata	agttcgactc	cggctgtgga	tggcgagtgt	300
cagcaagccg	atagggaaag	agctgatttc	cgagcgtatc	gatgttcttt	cggaatgact	360
cgtacagaag	tgcgtagtac	gaccggcgat	gccatttggg	acacttgttc	aatgacgggc	420
cactggaaga	aaggcggact	cgttattgca	tcaatagtgc	ctcccttcgg	tttattccca	480
aagaggatat	aagaaagaag	gctatggcag	tcttcttcct	cttttgaaca	aacgatgaga	540
tgctcttgta	gcatataatg	attcccaatc	gtctcagata	agactaactc	caatggcata	600
tctcgaacc	aaagccaagt	ggctgttact	actctcccca	tcgtgcttct	tgcaatagtc	660
ggagtctgga	tttttcaata	ttccggtatg	gggagcgatt	cgaattgtc	gacgaattgg	720
gtggcaatat	ctttcgtccg	ccatactgtc	ggtagccacg	accgatgctg	aagtaatcaa	780
accgtcgaag	gcctgtacgt	gggcaatccg	aagtcctgta	tcagtattcg	cctaaaacgc	840
gaagggccaa	tagccgtgtg	cgtgtggaag	tagccgaaac	gcttttttct	cccaggggga	900
tc						902

(2) INFORMATION FOR SEQ ID NO:449

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1731 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1731

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:449

atccttcggt	ttagggggtt	attgccaaag	ataaagagaa	gtccccgtaa	tttgtctgca	60
attatccaga	tagtatgact	accaagggag	gaataccacg	tcgatgtcct	gcgagttctg	120
gcaggattga	tgtaatcgg	catccatctt	cgggagaata	cgttctcgaa	ggagtggctg	180
agggtgcaaa	ctttatgccg	gtctatgctg	ggaggcggtc	gtgcagccgg	ccgttcctat	240
attcgcatta	tcagcggggc	ttttgtcttg	ggacgcaatg	agacgtgggg	agattctatc	300
ggaaacgaat	accgcgactg	ctggtactac	tcgctttttg	gctccgttct	attggctgtg	360
gctgtggctc	aagggcgatg	atataggttc	cttcttgccg	gcttttggca	gggacgctca	420
ttcgttcatc	tgtggtatgt	gtgatgctgc	tgggacttta	tgacgtcgtt	cctctgctca	480
acgaaataat	cgaggtgctg	aagccgatgg	agagaaggct	gctcgtaaac	gactttggat	540
ctctctacca	tattgctact	gctggggata	ttgtccaaca	cctacgatac	atactcggtt	600
acaaccgctt	tttccctttt	ctttggccgg	attatttggg	tatttccttg	tgggttatac	660
cctgaagagc	catgctccgc	agcggtttta	cgggtctctt	ccttgtagcg	actctctacc	720
atttctcttt	tcttccaagt	cggtacgctt	tcgagcacgg	cgaagggcta	tacttctacc	780
gtaactctct	ccttttgattg	ttctttctgc	tatcagttct	ttcgcggttct	tcgttcttgg	840
ggaggatgtg	gaggaaaatt	ggcgcggatc	gggaaaatgc	aggggatatt	ttaggaatct	900
acttagtaca	catcgctgtg	ctgaacgtgg	tacaaaaata	cttgtagtga	ccacccccag	960
cctgatgcaa	tgcgcatggc	caacataccg	atccgtgtag	gattggtttt	cttcgtttct	1020
tggggagttt	gcggctgatg	aagcggttgc	cgatatgccg	ctatttggtc	tagatcagcc	1080
gataccggtt	ctattgtacc	cgtttcttcg	acctctctat	atcgttcccc	gtttcaggac	1140
agacggccat	ccccttgtea	tcgaacgaca	agcggtagcc	gcgcggctta	cccaaccgat	1200

ccggcgagca	ggattgcccc	ctaccaggca	tagggcggtg	catcccta	caccacgggt	1260
cctgcaccta	ccatgcataa	gcccctatcg	taataccaca	aagaatagtg	gcattggctc	1320
cgaggagacg	ccttcgtgca	aatgagtggg	gcggtattcg	gattttcttt	cataaaggcg	1380
cgaggattga	tcacgttggt	aaatacacaa	ctcggtccga	gaatacgtaa	tcttcgcata	1440
tgacaccact	atacagagaa	acgttggtct	caccttacag	cctcgcccca	gtcgtacctc	1500
cggcattata	acgacattcg	cccgatgttg	caattctctc	cgacctcggc	tccgcacatc	1560
aagtgagaaa	gtgccatacg	cgtgtaccct	gaccaagcac	acaaccgtct	tctactacgc	1620
tgtgggatgg	atcataaaga	cctgctatca	attggcgatc	aactgtcggc	acgttctacc	1680
gatgaacgga	atgaggcatt	catctccatc	tcgttggtcac	acagcgacag	c	1731

(2) INFORMATION FOR SEQ ID NO:450

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 424 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...424
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:450

agtacccgga	gcgggcaaga	gttcttcgat	cgatgctttc	ggtatgcatt	catcaagcan	60
gggcggaagc	ttgccgtgct	ggccatagac	cccagcagga	gagatccaaa	gggagtattc	120
tgggcgataa	gacccgtatg	gagcagcctc	tcgagagaag	aatgccttta	ttcgtcccag	180
tcctgctgcc	ggttcgtggg	tggcgtggca	cgcaagacgc	gtgagaccat	cgtgctgtgt	240
gaagcgccgg	attcgacacg	atctttgtag	agacggtagg	angtgggaca	gagcaaaactg	300
ctgttcattc	gatggtggac	ttcttcctgc	tgatccaact	ggcggtagcg	gggatgaact	360
tcagggtatc	aagcgcggga	ttatggagat	tgcccgatgg	gtattcatcg	tcaataaaag	420
cgga						424

(2) INFORMATION FOR SEQ ID NO:451

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2521 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:

(2) INFORMATION FOR SEQ ID NO:1

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 610 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...610

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1

gagcataccg	cccggccagc	gttctaccac	atagggcatt	cccactgatt	ggccaattcg	60
gcgatagggt	ctttggcctg	cttcttcgtg	gcaacgaaag	aatcttcttg	ccatttttgg	120
ccataccctt	aataacttcg	gctgcttgct	tacttttagca	actgttttgt	gcaggtcgat	180
aatatgaata	tcgttggctc	cataaaagata	tacggagcca	taagccggat	tccactttct	240
cttgagtgtc	cgaagtgagc	accggcttcc	aataattgat	caaaaagaaat	tcttacattt	300
tcgtttacgt	tctttgtaat	gattactgtt	tgcaatccaa	accgtagagc	agactcgaaa	360
agaaatgaat	tacccccgaa	tgcaatccga	tgattttagat	actaaacgcg	agaaatatcc	420
tctaaggaca	ttaacgctta	cgaattggaa	tctcttgcca	gctttgggac	gtccccggtt	480
cttacgttct	ccacgcgagg	atcgcgagtg	atgaagcctt	ctgaacgcaa	agcgggtttt	540
cgtccggatt	gatcttgacc	agtgcacggg	ccgatagcca	agcgagcact	cgttctgacc	600
tttgaaacca						610

(2) INFORMATION FOR SEQ ID NO:2

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 628 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...628

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2

tcttccgctt	tttttggaa	actcattcgc	atcgaaagct	ctacagagct	caaggatgcg	60
gagaggatta	gtttgacacc	cgctcaaagc	tatttttgca	gcgggtgttg	cgctttctgc	120

ttgcagtgcca	ataaacctga	tgcccttccg	gcgtctatct	aagcataaac	gacaaaaaca	180
cattagtcaa	acttttagaaa	acattgtatg	aacaaagtgt	ggaaatacgt	gacgggagcc	240
tttggatagc	agccgtcagc	gcagtagcat	cgggtggcaac	agtggctgct	ttggaccctt	300
ccgaggggtgg	aattcttcat	aaccgatggt	acggaaaacg	aatcggattc	aagcagacat	360
cttacacaac	gacatccgga	gccttcgccg	cttgcccaat	ttggtcggag	ctgcagaagc	420
atcggtacac	gccgtagtac	aatcaaagt	gagtcgcgagc	agcgaatgga	ctcttcagca	480
gtacttcgat	cgttctgaat	tcttcttcgg	aggcgaatcc	agaaactttc	agcgtcccca	540
acacggcagg	tagtaggcta	cggttcgggg	gtgatcatca	tgcacagagg	atatatcatc	600
acgaataatc	atgtagtaaa	gggagcca				628

(2) INFORMATION FOR SEQ ID NO:3

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 970 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...970

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3

gacttcttta	ccccgctaaa	agtaacctta	ctgatgcgag	gacgttcagg	acaatgattt	60
tcagatagac	tttattgccc	acatatttat	ccgcgatggt	cgcacatttg	agaagtagcc	120
ctgacgcata	attctattca	cggcagcgac	atggcatctc	caggaatcag	gacttcatca	180
cctacagcca	agcctgaaga	ttgcgcaaga	caaagtcatc	gaaagacctc	attccctcga	240
tctcatagat	gctatgggtc	tatgaatagg	cttggcatag	gatatttcag	ggcttatata	300
tggatctccg	tgaggggtca	gatccgagga	ctgtcctttc	aggtcacctat	gctggcgcag	360
aagagagctg	ctacggcaat	aatctttttg	taatagtctt	tctcaaatga	ttcaatattt	420
atthtctctg	agagcgattt	gtcgtgggtc	ttgccgaatc	gacgtccctc	cgatgaatat	480
tcttctatgg	tgccctcaga	cagtcggcat	caaagtccgg	ccaaagcgta	tcggtaaaaa	540
caattccgta	taggccattt	gccacataag	aaaatgctga	tacgttcctc	ccacctgtac	600
gaatgaagag	atccggatcc	ggaatgcccc	cgggtggaaga	tgatcagaaa	ccaaatcgac	660
atthtatatc	tcaggctcca	cacttcatcc	cgaacctttc	gagccaatct	acggatgaca	720
tcggtcattt	cccaggagaa	ctgtagctaa	gggccaaaac	caaagtcagc	cccgtgtttc	780
cggcgtctct	cgaataccct	tttctaacga	ttcacggaca	tcctcgggga	gccactgaaa	840
tcgccgatag	ccaagaggcg	aatgttattg	gtcatcaagt	ccgcattctc	ttcatgataa	900
gctgtaacga	aaaggcccat	cagcgccctg	attcctcttt	cggacgattc	caattcttcg	960
tactgaaagg						970

(2) INFORMATION FOR SEQ ID NO:4

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 576 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...576

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4

```
agccgcacga ttggaaaaga aactggagca actcacagcc taacggcgca gagcctgtgc      60
ttgagacgct gcagaagacc gggatgattc tccggatccc tgagggtcaat gtctgggaaa      120
gattcttttc ggatacgatc agtagcagtc tcccacttgc aagtgcatac gccctttcgg      180
tacacgataa gccctccctc ttcgtaccag gatgacaagc tttcatcac gaagagaaaag      240
attcacagca gatcgccatg ggacagcatg gaagcatcca ccaactctctc ctccacttgg      300
ttcccgtctc ttccgggtatt tccacaccga acaggctacc tatggcggcg aaggaatatc      360
cagtccgagc caacgtgcta cctgggagat cgactcccct gtacgagcag agagagtatg      420
gtaatgaaga agacgacatt gaaagctgat ccgctccggg gatattatcg atcatgggat      480
aggtggcaaa atgataggaa cggctccgcg caatccgacc cagctgagaa aggtccttacc      540
ctgaatgata ttttgcgga ggaatcagg cagaaa      576
```

(2) INFORMATION FOR SEQ ID NO:5

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 588 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5

```
gctttcatct ctattctcct tttttattct attgtgtttt tttcatattc tcttcggaca      60
tagccgtttc cgcatacaag gcttcctctt cccatccggc atttccacaa actccccctc      120
cgcatcagcc ccgcgatcga gacaatatcc aatagctcca tggcgtaggc cgtttcccgg      180
acggcttcgt cccgatgaga gcgatcccg tctgttgga cgaaagtcgt cccaccgtat      240
tcagcccacc gccacaccta tggccagtgc caaagccaca caagctacag cccctagcgt      300
accaaccgaa gcgacaaccg ccttgaagga tgccggacac gatctcccaa ctgcctatct      360
tttccaagag aactttgtcc gaatcatctt cctngcccg ttcacgtca ggaagaccga      420
tcaaagcccg caaaagctgc agtccgaatg ataggagacc ggatccggca atcccttcag      480
caagcaatac gctccaactc ctcttcgga aaatgggtacc ggcataaaaa ctttncagtg      540
ccggtcgatt ttattctctc ttacgcatca tcttatcacc tcctagct      588
```

(2) INFORMATION FOR SEQ ID NO:6

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- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 473 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...473

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6

aacacaaaac	tttagaagg	agtcttacac	ttcgtcccat	cgagtgtctt	cctttaccgg	60
tagtttcatg	agtggaaga	ccgctgccct	gaatgatgtc	ccatcaaaat	caatagcaaa	120
cagattatgg	ccggagattt	atacgacgat	cccgtggag	tgtaggaggt	atgttccgtt	180
ccaaatactt	ggatctcgta	gntgaaatac	cttcgaaggc	aaagacgatg	acatgattag	240
taaggctttt	acgtcacagg	ggtaggacga	ttgttcaaaa	acctcgatat	catcgatcat	300
atgacttcat	ggatttgtac	gaaaggcaac	atgtctcata	atataccgcc	ggccttcaag	360
tactggttct	tcccaaagtg	tcgtttgcag	gccagtatgt	attgagcaat	ccgaaaggcg	420
agtacaacaa	cacacacgct	cgctaacaca	ggtgcaggta	gcattctgac	agc	473

(2) INFORMATION FOR SEQ ID NO:7

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 625 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7

tcttattata	gaatttgatg	atttcgtaa	tcatttcttt	ctcctccggt	ctccctccgt	60
agtggtgagg	gctaccgctt	tcgagagctc	atccacggca	tatcgtattt	cttcttgctg	120
atacctctgg	taacgatgcc	ggtactttga	ccagcaattt	tgaaaacggt	gacaatatct	180
tatagataac	ggacatgctg	cagcagaaaa	gcgcgagtat	tcgacgggat	tcttccgcgc	240
atacatttcg	gcagaatctc	ttcgaacagc	aaaaggacca	gtggccagga	gtatgtctgg	300
atcagaaaatc	caatgatcgg	agaagagaaa	acgaatgtct	gctgatggca	taattggaaa	360
ggataacgat	ggctacatta	atcacattat	tccgatcaga	atagtagcta	atagctgatt	420

cgaattgtct	aataaattgg	aagcgcgatg	tcggaagagt	gattccgttc	gcggatgttc	480
tgcagatcga	cggctttagt	gaaaaataag	ccacctcaca	ggaggacata	aaagccgaaa	540
gcaaagaaga	agcaggtcga	taatgaaagc	cactatggct	gctgcaccat	aggatgaccc	600
gaagcccttc	aaaaaatcag	tataa				625

(2) INFORMATION FOR SEQ ID NO:8

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 962 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...962
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8

ggggatttgg	ggcaagataa	gttactttgt	agagcttgaa	tggcaaacag	ggattttctgc	60
ctattttcca	aaaatctgca	tcgtcgattc	ttgaaacggt	tgagagccaa	cgggggcgca	120
aggagtttgt	tctggttggc	cacccgagag	cttcgtctcc	ggggagagtt	ttaattatct	180
tatcgggcaa	cttaaagcag	ctatcagttc	ttgagcatga	cagagttgta	tgatcagagg	240
ctaaaatagg	cacaaagaaa	ggcgtcaagg	atactcataa	gcccgaagaa	cctgcccaga	300
aggaccatct	ccagagggac	ctgaagctgg	tttgtaatta	gttatagaag	ctcaccccag	360
tagaggtagc	gagttttgct	ggggtgagtg	tcactctgta	ttgttttagtc	attacgaccc	420
aatagatggg	tattatcaaa	atccatatta	gatatgctta	atgcaattta	tttttaccga	480
ttgtctcatt	gctttatcgt	catcatatcc	cgatattgcc	aaagttaatc	acattgctct	540
cttcctcatt	tataatagca	agatacctcc	tcaagctaag	ataggcaagg	atctaagttc	600
ggttatggag	ggataagtgt	tgtggtacat	catgactggg	gataggagaa	aattgtagta	660
ttggtcacgt	tgttactata	ggaggagtaa	ttcgaagtat	ccaggagtcc	ctgttatagg	720
aaataatgtc	cagatagccg	aggaagtgtg	gtttttggcg	ggataacccat	tggttaataac	780
gttgtagtagg	agccaataca	gtagttaatt	ttcctgtccc	agacaatgct	gttttgaagg	840
caatcctggg	cgtattgtgc	atattaaagga	aagtacatgt	tacatcattc	ctcaaacctta	900
aaacctattg	ngaacaagaa	ggcttcaaag	gtgggatccg	tacgatggat	tgaactccag	960
gg						962

(2) INFORMATION FOR SEQ ID NO:9

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 605 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9

```
agcagccggc cggccaacgg aaagcttcgc ccccatggc ggcacgaata tttcgataga      60
cacgtaagaa gggcttttga aagacgagcg accacgtact tgataatggt ggctcccccc      120
ttcacgacac gctgtttcag ttctgccact gctcgttggt cagcttgctg gtaccgatca      180
gatcggtcag aggcgtccgt ttaccttggc cgtgctggcg aaaacagcca tctgctcgcc      240
atgactccat aagtacgcgt gttggtcacg agactttgtt tgatgccgaa gtgctagcca      300
gttcgctttg cagacgtgtg ctgtccaaac cggccaaaagt agtacctgcg aaggettccag      360
cccggagtag ataagcgtaa caagaccggt gagtcagccg gattgaagat gatgatcacg      420
tgcttacagt cgggacaata gtcttgatgt ccttgcccag ctgagcagcg atttcggcat      480
tgcccttgag agatcctcgc gggtcatacc ctctttgcgc ggagcaccgg ccgaagaaat      540
atatatttgg catctgtaag agcctcttga tgtcngatgt aaaagtcaat tcaggccttc      600
gaatc                                           605
```

(2) INFORMATION FOR SEQ ID NO:10

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 688 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...688

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10

```
cctgagccac acactgggtct ataatggcat tggacacttc ggccagacgt atacgttggc      60
ctcgcgagca cgatagtcac ctcctttgat cgtatcgtga agagtcgata aacggagtcg      120
ccgtcgttct ggtagttctt ggcggcatga tacctccctg tgcagcgatg gagtgcgcac      180
ggcgaggaga atcctgatgc agaagttaag cacattgaag cccatctcgc cgaaagaagc      240
agcagcgaag caccggccag gccggtagcc accacgataa tatccagacg acgttggttg      300
ccgggttcac cagcttctga tgatccttat agttggtcca ctttctttca gcgggcccgc      360
gggtattttg gaatttattg tagccatagt gaaatacttt gaattagggt gtactatcaa      420
ccgatgaatg cctgacaagc aatactatca ggaccaaagc gaaaccgcct accaatacgg      480
tagaaaccac ttagagatgc acttgacacg attcatccag atggtattgt tccatcccag      540
gtctgcagtg cactccagaa tccatgtgtc aggtggaacc acaaagcatc agccatacgg      600
catagagcac cacgtagatc ggttggttga atgtgtacgg atcagctctg ctccttggc      660
cggatggctc aaaccatcaa taccgatc                                           688
```

(2) INFORMATION FOR SEQ ID NO:11

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1593 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1593
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11

```
ggtcgttcag ctccgagtag gcgttgGCCa actccttgcc attgaccata gctcgaatcg      60
ctctgtcagc tccggattgg tgcggtgctc cttegtcaag gcgacatttc ttctcgatag      120
tctgtgatga aagtaggctg gatatagtct tctcgcaactt ctcgccgaag atctcatcga      180
tgagcttgcc tttgccatcg tttcattgtg ctctacgccc agcttgtcgc atacctgacg      240
cagctggcct cgttcattcc gctgatgtcg ataccggtat gctcatggat ggctcgatca      300
tggtcactcg cttgtagggg gccttgaagt cgatcaattt cccccacct tcacttgagt      360
agtaccacgc acatccatac agatgcgttc gacatctgct ccgtaaagtt catcatccag      420
ttgtaatcct tatacgccac aagatctcca tggccgtgaa ctcaggatta tgcgtgcggt      480
ccatccccctc ttctcgaaat tgcggctgaa ttcatacaca ccatcgaaac cgcccacgac      540
agacgcttca gatacaattc gttagcgatt ctcagataga gcggaatgcc agagcgttat      600
gatgcgtgat aaaaggacgc gcagctgcac ctcccggatc gattggagta cagggtgtatc      660
cacttcgatg tatccgcact cattgagaaa ctgcgcatcg aaatggaata ccatcgtagc      720
cttgagggaa aatgttttga catgactatt gacgaccaga tccacgtatc gcttgacgat      780
aacgtgctcc ggatccgtga agccatcgaa gacctcccca tctttttctt ttacacagga      840
agggggcgga tagcttttga caagaaagtc atctcctgca cagcaccgat atttctccca      900
tctgagtgcg gaatacgtac cctttcactc cataaaatca cctatatccg tacacttctt      960
gaccaccgta ttgtagaact cttatcctca cccggacaaa tatcgtcccc agtaatatag     1020
atctggatag cccctcagca tcttgacagt ccatgaatgt agctttcccc atgatacgcg     1080
gctcataata cgtccggcaa tgcttacttg acgtttggcg acattctatc gccattgaaa     1140
ttccttttga tctcggcgga ataggcattg acggttaattc cgctgcagga tatggatcga     1200
tccccaaatt acgcagttgc tctaactgtt acggcgtacg acttcttggt ccgaaagtgc     1260
gagtatgttc atgcaaaact tctaatttat attccccctg cagcaacttg cttgctctgc     1320
tgctaaccga cacgatcgga gccattcgtc cgaggggggaa aaaccttggt tccaaaggta     1380
acttatttct atcagatacg ttccagaacc aaatcgataa gccctctata cttccctgat     1440
aggaggtatt catcttttgc gatttcctgc tgcgatgata caacagaccg tgatggcttc     1500
gtgccccatc agggcagccg accggccaaa gaggagcttt ccatttcata gttcgttaata     1560
cggctgcctt gaagtcgaaa gcctgtatct tcg                                     1593
```

(2) INFORMATION FOR SEQ ID NO:12

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1422 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1422

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12

```
tcgggtcatgc cctccacggt atgtttcccg cccagcagta tcctttgctt ccggtacgaa      60
tgtggcgcggt gacttcgctg agatgccgtc tcagctcacg aacattgggc tatggatccg      120
gaagtgtttg ccaactacgc taagcacgga agacacagga gcctatgccg gccgaattgg      180
tcaagaagat tcaggagcga gcgacttcaa tcaggcttat tctatgggag aaaatccttg      240
agccgaagcc tcgatcaggc atggcatacg ctcacggctg aagagncgga ggccttaccg      300
acgtggccaa gttcgaagaa gaagccctgc gcaaagtcgg tcttacaatc cgcatatacc      360
tcctcgctat cgctcctctt atttccgcca tactggagca atggttatgc atccggttac      420
tacgcttatac tgtggacaga atgctggatc acaacgttta tcaatggatg gtgcaaaacg      480
gtgggtatgac ccgcaaaaacg gacaacgcct tcgggatatg attctttcgc gtggcaataa      540
caggattttca acgtgatctt caccgcgttc accggctctg aaaagcctac atcagggtt      600
tgctccgcgc tcgcggtctc atgtaataca gcaatagcga ggctgtgctt tcagggtcca      660
agatcctgca agagcacagc ctctttttat tcacctata ccaaaaacga aacagctacg      720
atgaaaaaag gagattactc atccttctga tcattatcct gatgttgggg cttatgcttt      780
cccctggaca tcggaaacat tcaactccct cagtcgccat tatccttatt atacggtttc      840
ctgaagtttg ccatcttggc taccatcggt gaagtactgg ccgacggatc aaagcccaac      900
gatacacctg cccacacctat ctatgggtgc gattgtgata tggggcattg tcggtatact      960
catcgctctt aacttcgggt gtacgaagcc ggtatacagg gtatcatcgc aagaggactg      1020
ctccccgact cgacagttcg gtctatacgg ctttccttat ctcttccgcc atgaatctac      1080
attcgggccc gccttcatgg ccgcccaccg catcagcgat acatatcgga gaataaagct      1140
acaggacggg gaggaagcat ccggctcgcc gttgaagagt ggattggaat cgctttatga      1200
ctttcgtcgt tggcaagacc attccttctt ctggataccg gcacatacgg tcacctttt      1260
acttccaccg gagtccgcgt ctttgtggct gcactcctgt ccatcgctct gggactgatc      1320
ttgccttggc ttcttcccga catgcaaagg cgtaaaacat cagggaaccg caaaggattt      1380
gataccaaaa tgatgaaaat gccatgaagg aactgaaatg cc                                1422
```

(2) INFORMATION FOR SEQ ID NO:13

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 713 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...713

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13

```
ggcagtagcc tgttcggcag canccgtggc ctcacgatcg cgcaggtttc caccataccc      60
tcgtattcga gtgctnccac acgattggcc agctctattc gcgtacctta tccgttgtac      120
ctgctccgat gctatccaaa tacctttgct ctggagctct gctcttcggc ggctcgttctg      180
```


catggctttg	accttggttc	gcgtcgcttg	gcgttgagtt	ctccgcggag	ttgtacttcc	240
tgccgtgcag	ttgggtctgc	ttcatccgca	gttcgtcctg	caatttctcg	aactcgtgcg	300
cacggactgc	aagtccagtt	ccaacaaggg	ttcacctcgg	tgtccgaatc	gcctgcatgc	360
ttgagcacag	ctatcagacg	cgcctgcacc	gggaagtgat	gatctcctcg	aaagccggca	420
ccacttcgcc	ggaagccgag	gagcgatctg	cacttctcct	ttgtccaccc	gccccaaacg	480
cagagaggct	cggatatgga	gccttggatg	gaggagagca	accaccatcc	gcctaagaaa	540
gaaggactgc	cgaagctgtt	atgattgagg	taaccgtctt	tgcttttccg	ttgagccgtt	600
cggcgaaact	tgtctgtcat	gaatcggttt	cttttttcgg	tgcgagcctt	tgttgctcgc	660
cggcttccga	agagcaaatg	ccatgcaaac	aaatccctgg	ccttattaat	cag	713

(2) INFORMATION FOR SEQ ID NO:14

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1244 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1244

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14

ggcatgaatc	agttcaagga	tatcatactc	ggaaataaccg	aggctaaatc	actcgtgtag	60
cagactcgca	gaagtgtttg	cgtgtaagcg	gcaagcacac	gacctcgaag	aggtaggccca	120
tgacacctat	catcatacca	tgttcgaatg	ctcggcaact	ggtcgttcgg	cgattacttc	180
aagaaagaag	ccatcgatgg	gcttgggaat	acttggtgac	gggtgttgggt	ctggatcccc	240
agcgttctat	gctaccgtat	tcgaaggcaa	ccccgaagaa	ggccttgacc	gcgaaacgaa	300
gcgggcatctt	actgggcaca	gtttctgcct	gaagaacgaa	tcacaacggc	aataagcatg	360
acaacttctg	ggaaatgggc	gataccggtc	ccgcggtccc	tgctcggaaa	tacatatcga	420
cctgcgttcg	gacgaagagc	ggcccaaata	aacggtttgg	agctgatcaa	taagagccat	480
ccgcagggtca	tgagatatgg	aacctcgtct	tcattgcaata	caatcggaaa	gccgatgctc	540
cctgacgcct	ctgccacaca	aggtgatcga	tacgggcatg	ggattcggacg	tctgtgtatg	600
gccttgcagg	gcaagacttc	caattacgat	acggatgctt	tcagcctctt	atccgtactt	660
tggctacgat	gacgggaatc	ggatacgtga	ggattctacc	tcggatatag	ccatgcgcgt	720
agtagccgac	cacatcggac	tatcgccctt	gccatcacgg	acggccaatt	gccctccaat	780
gccaagccgg	ctatgtcatt	cgccttatcc	tgcgccgtgc	ggttcgtctac	ggcacacctt	840
cctacactgc	cgcgaagcgt	tcattgtaccg	attgctgccg	acctgatcga	tacgatgggc	900
gatgcttatc	ccgaattgca	agcacagcgc	gactgatcag	ccgcgtgatc	aaagaagagg	960
aagagagttt	cctgcgtaca	tggaaacggg	tatccgcctg	ctggagaaaa	aaatagccga	1020
caataaggca	ccggctccac	cgtattggac	gggtgtcgtg	ccttcgaatt	atacgatagt	1080
tcggatttcc	cctcgacctc	acagccctga	tcctatcgga	aaatgggtga	cgggtggacga	1140
atcaggcttc	gacacggaga	tgcagaagca	aaaagacgtg	cccgtaatgc	cgctgccgta	1200
gaagccggcg	aactgggtag	tgctagttag	ggtgaatcca	aatc		1244

(2) INFORMATION FOR SEQ ID NO:15

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1845 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1845

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15

tcgcttgaag	cagcacgcac	atcatcgtag	ctgataccca	gttcgtctac	aagtctacac	60
tcattctctt	gtccttcctc	accaaatagt	tcagctgcta	ttgcgcggat	tgcgctgctc	120
cttgccatct	atatagatct	gattattctg	atgctcaatt	cttgctccggg	cataccacaca	180
cagcgtttca	catagtgtcg	cgtctgtcca	cggggcggtta	aacgatctcc	ccgtagaaat	240
ccggatactc	caaagctcct	cccgtcctac	gagtttcttc	cacatataat	aatcggattg	300
ggctgcttga	cggccaccgt	atcgcttgca	gggaagttaa	agacaccaa	tccccctcct	360
tgacgtgtcc	gaaacccttc	agtcgcttgt	acgcaagaga	ggtttgtccg	agaacgattt	420
gccaccggtc	aatggcatcg	tttgtgcgtc	agcggcacac	cgagcggagt	cataggcgaa	480
cgcggtccgt	cgaaagcttg	ctcacgaaga	ggtagtcgcc	tataagcaag	gtcttctccg	540
cgaagaagtc	ggaatggcga	agttctgaaa	caggaaagcg	aagataaagt	aacggctacg	600
acacagtaga	taatgtctgc	caccagctg	caaataaccg	aagcgtcttg	tttcggatat	660
tcttatacca	gccccatttg	ataataggaa	gaaataataa	tctacgatca	aaggcagaaa	720
aatcagccaa	aacggccggc	ccatatacaa	aaaaggagggt	aaagaatagt	aatggcaacg	780
cctttatacg	acgccatggc	gtcaaattctt	tccaatggaa	ggtcatatcg	ttatctgttg	840
ttataagctg	attaaatcgt	tcattcgtcag	aaagcctttg	tggtggcagc	atattcggca	900
gccaacacgg	caccaagagc	gaatccctct	cacaaaaagc	ttcgtggcat	atcgtcagcc	960
gatccacctc	ggatgtatag	atatgctgtg	cgtacccggg	acttcgcctt	ctcggatgga	1020
ggtgatcgga	gttcgttctc	ctccgggtgc	tccgtcagtc	tccaagcgtc	cagcgaggag	1080
attcggctat	caatccctcg	gccagtgtaa	tagccgttcc	gctcggacgt	ccaacttatg	1140
tacatgatgg	atttcctgta	ggtgaggacg	atactgtcgt	gccggctcat	caatcgggca	1200
aacatacgac	tgagcgagaa	aaaaaattga	ccccgatgct	gaagttcgaa	gcccagaaga	1260
gggtcttttc	ctccgtcggc	agcgttcttc	cagctcgggc	agacgctctg	tccaccccgt	1320
agtcgcgaca	ccaccggcac	ggacttatcc	atacagcgcg	agcaattcgc	atggccgcat	1380
ccggacgggt	aaattcgatg	gctacatcgg	ccgaacgaaa	cctatcgaat	cgaaacgac	1440
ttcctctccg	gcatcgatcg	tcagcaccac	tcattgccctc	ggctgcatgc	aatccgttcg	1500
atcacatgtc	ccattcttga	taccctatca	gtactatctt	cataggattt	tcttcttgga	1560
aaaacgaacg	taccgggccg	caagggccaa	aggtacacag	atttagcgca	agttcatccc	1620
gtgatcttgc	ggtacagatc	cagcgcgtat	atatcggtca	tgccgggtata	tagtccagcg	1680
tgcactgtat	cttaccgtag	aggctctcct	cccgttggtg	tactgcgtac	ttacccgact	1740
gagcagcgtc	cggctatagg	catgtccgga	ttggtgaggg	cctgcatcat	cttatctatc	1800
agcgaccga	atactgatgt	ccggcaagct	ccacatccac	cacgt		1845

(2) INFORMATION FOR SEQ ID NO:16

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1193 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1193

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16

aaggcaacgt	ggttgactgt	atcgaatgcg	gttcgtgcag	cttcacctgc	cggccaaccg	60
tcctctgctg	gattatatcc	gccaagccaa	gaagactgga	tgggtatcca	aagagcacgt	120
aagcaataag	aaaggaaaata	agcgatgaaa	ataaaaattat	catttctcct	tcaccgcaca	180
tccacagcgg	agacagatca	aaaagaatat	gtatggtgtg	ctgattgccc	tcttgccctgc	240
cttggcatgt	cgggtatatca	gtttggaatc	ggtgcggtga	tcgtaacggc	agtancggtc	300
ttaactggtn	gcatacngga	atacctgatc	agcaaatata	tgtgggcaag	gagcctacca	360
tcatggacgg	ctcagctatc	ttgaccggcg	tatgctggct	ttcaacctgc	cgagcaacct	420
gcccgtttgg	atcattatca	tgggtgcagta	gtagctatcg	cattgggcaa	gatgtccttc	480
ggcggcttgg	gaacaacatc	ttcaaccccg	ctttggtcng	tcgtgtattc	ctcctgatcc	540
tttccctgcc	cagatgactc	tctggcctac	cgaaggacag	atgacttcta	tctggatgcc	600
gagaccggtg	ctacgcctct	cggcctgatg	aaagcagaat	gagcggcgac	acctcggtt	660
tggctaatat	ccccacagac	ctgcactgtt	tatcggtgaa	gcaggttctt	tgggtgaagt	720
cagtgtatc	gcattcttct	cggattggtc	tatatgctgt	acaagaagat	tatcacgtgg	780
catacccggt	gtctatcttc	gcactctgtga	tcgtactggc	aggtattctg	cactggccag	840
ccccacatcc	ttcccgccca	ctccgtggtt	ccacctgttc	tcggcggtat	gatgtcggga	900
gccatcttca	tggccacgga	ctatgtgact	tgccgatgac	caagtccgga	cagatccttt	960
acggctgtct	gatcggtttg	tgaccgtcgt	gatccgtaca	ttcgggggctt	atccggaagg	1020
aatgtcattg	ccatcctaata	tatgaacggt	atgacacctc	tgatcaacac	ttatatgaac	1080
ctaaacattt	tggaggaaag	aacaaatgaa	aaagctaaaa	tcttcacccc	caatatgttg	1140
ctctctttga	cgggcttctg	tatcgttggt	tctgctctct	tggcatgatg	gac	1193

(2) INFORMATION FOR SEQ ID NO:17

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 756 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17

ggttgctcgt	aaacgtggaa	ccgtgtcttg	cacgtgtatt	ggtcgtagga	aaccgacaat	60
atcggggcga	gagtacacag	gcgatgtttc	ctgctatgca	ttgatgtagt	accacaaagg	120
atataccctt	tgcgcatctt	ggccaaatct	ccagtggcac	taatgaagcc	tatggagaca	180
attcgctctt	tgtgacgtt	atgcctcaag	ttgggcagag	gaatcgatag	ccgccggtgt	240
agcatcaaca	acgtctatgg	gtatgtcaag	gcagacatgt	ttgacaatcc	tgtgcagcaa	300

ccaagatgca	ggagaaaaag	acggacttca	atctgaacca	agtgcgatct	atacaaaaga	360
atcgaccgta	aatcctaaaa	actactttac	ggttatgtgc	cgagagtagt	cttgcggtgca	420
aaatacgttc	ctcatggcat	cccggcgtga	agccggatga	aggctggatc	gaatttcagg	480
gtagaaagat	agtctggagc	agttcaaaaa	atacgtagac	aatccgggtt	ctgccggtag	540
gctctggccg	acagcatcaa	gaaggcgaaa	gctgacaatt	cattgggtcat	acagggtggat	600
tcgtcagtca	tggaatacag	ttctattaca	aatcgcaaat	tattatgccca	tccctattcg	660
ccatttcgat	gatgaaaaag	ctcctacaaa	gattcctacg	ggcgtttcgg	cctcgtacga	720
aacaatgagt	atatctctcg	gtaaagtcca	ttacag			756

(2) INFORMATION FOR SEQ ID NO:18

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 549 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18

acgaactgaa	aagcgttttg	ctgaaagacc	tctatgacaa	tggcgagaaa	tcattcgaaa	60
ccagcagngg	cagatcgatt	cgctccgaaa	tgtattaact	tctacaaccg	tttctcttcg	120
atggagagtg	agatagccca	agagctgaag	tgattttccc	ctctatcaat	tcggctatgc	180
tggtaccttc	gtccgggtgg	cacagggtag	ggattccggt	ttgctcgtcg	tggtgcgtcc	240
gaaagccgga	taagccagtc	ggaaataaac	aagctaagca	catggatggc	tacggtacca	300
agaccaagaa	agtgcgcctt	atcatagaca	ataatcatag	gtacaacccat	aaacagtaat	360
gcaaatgaaa	ttaaaaagta	ttcttctcgg	agagccctgc	tggtgggtgc	ttaaggggta	420
gccaaaagccg	acaaaggcat	gggtcctca	acgaactcaa	tcaggagaat	ctggatcgaa	480
tgcgtgagct	ggctttacct	cccgtggatt	cgctctacag	tttcgacaag	ccgtccatgc	540
atgcccgtg						549

(2) INFORMATION FOR SEQ ID NO:19

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 300 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...300

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19

gagttctgct	tttttagctg	aatccaaata	cattttcttc	cgttttttac	gtgttaaaca	60
ataactactt	ccgctactac	ggtcgtagat	ctggccgcaa	gataatataa	ttccctatac	120
cacagcgcg	atctgtttct	tcgctctgtt	ataacgatgc	cgttggacgt	acggatctac	180
attggggcaa	gcattcagga	aagggtgaact	cgcccttctt	tgcatttttg	ggtcacaaaa	240
caagcaagaa	agccgagatt	ctatttactt	ttgtgcactc	tttgaacgaa	aatncgctta	300

(2) INFORMATION FOR SEQ ID NO:20

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 746 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...746

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20

gaagcaaaat	ttgtcactgc	angcatgtaa	cagtattttc	tgcaaccgaa	tcaccgtctg	60
caaacttgaa	tcaaagagat	actaatcata	agcaattatt	tctcaataaa	ataatcatta	120
cttcacatatt	tagtcatagc	tatcatggta	cttattttcaa	attcctcagc	cgcaacaaac	180
tctacacctt	cgttacatcg	taggctttgc	cctctcgctc	atattcgtct	tgctgcttag	240
cttcttgtac	ggcgcggaaca	gcaagccgat	cgtatttcata	ccgattacaa	acgttctatc	300
agtacaatgt	cgagagtaag	aataactgga	gcggattttat	ctgtgctatc	ctgccggaac	360
gctcattcgc	gagcaggtac	ccgatgtgga	aggatatgcc	gcatcagcga	atacaacgac	420
aaggaataca	tctttatcgg	tccgacaagc	aaaacgggtt	gattgcctcc	catctttcgg	480
tcgaatccaa	ttctttactt	tcttcgacgg	ctataaaactc	cttgagggtg	atcccaaaat	540
gtcctttccg	agcagaacag	tgccggttatt	tcctccgcgt	tggcagccgt	atcttcggta	600
acgtgtctcc	catcgggcag	gagatttcgt	ttttcgattt	tccaaaaaca	agcagacctt	660
tcggatcacg	ggcatcatgg	agccgagccg	gataactgcc	atatcagacc	ggccgaactc	720
cttttctatc	aggagccaaa	gaaaaac				746

(2) INFORMATION FOR SEQ ID NO:21

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1804 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1804

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21

gcctcaatan	agcgatcgga	ctcttcctcg	caggtgtggc	agccgtgatg	ttccccgtgt	60
cgatacatte	aacctccac	cctcgctccg	ccctctcgca	tccccatta	ttgggtacag	120
gtgggaggcc	tcttcctcgt	cacggtatca	atgccttcaa	gcaattctat	gacggcatga	180
gcgatacgcg	caccccatgt	atattaccat	atcgggcaat	ctcttcaatg	tcgggctgaa	240
ctaccgctga	tattcggcaa	aggcggtctc	cccgaatgg	gactcctcgg	tgcggctatg	300
ccaccctggt	gagccgctg	ctgatgctcg	tcaccatcgt	cctttcctct	atcgagacc	360
ctcatggaca	gcgatccgcc	acgccttctg	ccgcagatgc	atatccgtcg	cgctaccgc	420
cgcctattct	ccgtcggaact	cccgttgccg	tccagatggg	actcgaatcg	gcctctttca	480
ccatcgccgt	ctttttgtcg	ggcgactcgg	cgatcaggct	ctggcagcac	accagatcgc	540
tgcgtcatca	ccacgctcgg	ctacctcgtc	tattacgggc	ttggtgctcc	accaccatcc	600
gcatcagtca	cttcaagctg	cacggcaaac	ccgacgagtc	cgccgcgtag	ccgccactgc	660
ctaccgaatg	gccgctttga	ctgcctcggt	gtggttgtag	tgcttttgct	cacacggcac	720
agcttttctt	tcctctcacg	cccgaagaag	agggtggcga	catcgttgcc	cttacgttga	780
tcccgttgct	gtctaccaat	tcggagatgc	cctccaagcc	atctattcca	atgtctgcga	840
ggaatggagc	gcgttcgttt	tctggctccg	gcagcagctt	tcgccacgta	ttgctggcac	900
cgatactctc	ctatttgctg	ggattcgtag	tatatcgggc	aatacgccca	tgcagttggc	960
cggtatctgg	tcggcctttc	catcagcctg	acactgctcg	gcacccctct	ctacagctac	1020
ttccggaagt	aacccgataa	actccgcaga	ggaaagccct	tgctcgctct	tcggggaaca	1080
atcctttttc	cggtcgcccc	tctccatttg	ctccatggcg	gctgtatgaa	agtgaatacc	1140
acagacgaag	ccgaccgata	ttgccatccc	tttgcttctc	ctctgtcgat	aaagtgaat	1200
tcatttcctg	aaaaaaacat	gataatacgg	agagaatagt	atagtcttat	ataagaggat	1260
actatggtct	catagagagg	atactatggt	ctcatatgag	aggatactat	ggtctcatac	1320
gagggatact	atggtctcac	atgagaggat	actatggtct	catacgagag	gaactatggt	1380
ctcatatgag	aggatactat	ggtctcatac	gagaggatac	ttggtctcat	atgagaggat	1440
actatggtct	catatgagag	gatactatcc	ctctatatag	accccttagg	gatgtactcg	1500
aagatacccc	ttgaaacata	aaaaggctcc	tccgggaagt	ggcaagccac	ctgcccgaag	1560
gagccttgag	gaataagagg	aataaggcag	ccggaggcta	ctattcggtg	cggaagagat	1620
tgatccgtct	atgcaatcga	tgaggacggg	acgtgtactg	tccacctatc	ggccaagagt	1680
gccttgctca	agctcggtga	ggacgaatcg	ctgcagactc	gcttcacagg	acgcgctccg	1740
aactgcggat	catatccctc	gcgaccggca	aaggtcaccg	acagcctccg	tattagtgga	1800
gcac						1804

(2) INFORMATION FOR SEQ ID NO:22

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 999 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...999

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22

agggtgtggaa	gtcgcaggat	ctgaatatct	ttcagattat	ccagcgcaaa	gcaagggact	60
ggttgtatgt	atcaacaagt	gggacttggg	ggaagataaa	gtcaagccgt	catcaagacg	120
tttgagaatg	ccatccggca	gcgtttttctc	catttacgga	tttccctctt	ctcttcatat	180
cggctatgac	caaacaagga	ttttcaaagt	gttggagacg	gtcaatcagg	tctatgcaca	240
ccgctgactc	gtattcccac	acacaagctg	aatgaagtga	tgctacccat	tatcagggcta	300
cgccaccacc	tgctacaaaa	ggtaaatata	tcaagataaa	atagtgatgc	agcttccgac	360
ggcagtgcc	tcatattgct	tttttgccaa	tcgcctcagt	gggtgaaaga	gccttataag	420
cgttttttgg	agaatcagat	tgtgccact	gggatttttg	cggctactcc	atcaacattt	480
ttatccgcga	aagtaggggt	tgcccctgct	caatacgttt	aagtcacat	agaagaataa	540
atgatattgga	atggaaaacgt	tttagatttc	tgaacaatgt	cgtcggttgg	gcgtttttgc	600
agttgcagct	atcgtctatc	tgatgacaat	cgagcctcag	ccagcctgtg	ggactgtgcc	660
gagttcatag	tctgcgtaaa	caagttgaga	tcggtcatcc	gcccggagca	cccttcttca	720
tgctcgtcta	taatacatat	cgcatttcac	gagcgatccg	tcacagggtg	catggcttgc	780
caatctacca	gtgcactggc	cagtgccttt	accatcctgt	ttttgttttg	gacattaccc	840
accttgctcg	ccgcgtactt	gtaccgacag	tacgcaatgt	atcggattgg	aagagccgtc	900
aaggaaaata	tcctttccac	gagtaatcac	gtactcggca	gtggagtcgt	tggagccttg	960
gtctatacgt	tcagcgatac	ttctggttca	gtgccgtcg			999

(2) INFORMATION FOR SEQ ID NO:23

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1132 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1132

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23

gctcatgcac	caaacaatac	aactcttcac	tctgcttcgg	cgtaagcgac	ccatatcgaa	60
ccacaactcg	ctgacagggc	cgtagcccgt	gaggatcttc	tgacctgacg	catattgtat	120
tggtgatgtg	ccggagtaat	ccgatcacat	tgtgatcgct	gatcggattg	gcttccggga	180
aatgccaatc	aataaggaga	agtaaacgcc	gaacttcata	cccgaacgct	cacaagcatc	240
gctcattcct	tcatcacatc	gcgacgcgaa	ggagtggcct	ccactatatt	gaatgagtct	300
cagccgagcc	atacatgcag	aagccatcgt	gatgcttgga	agtaaacacga	tactcttcat	360
ccctgctttc	cgagctaagg	ctactatggc	atggcatccc	atctgtcggg	gcggaaccgc	420
ttggccaccg	gctcgtattg	ctcatgtcgc	gtattccgaa	agagtagatc	tgttcgctat	480
atccgttctt	actggtttgc	cttgccaaac	ccctccaagc	tcactgtaga	agccgtaata	540
atgaaaaggc	tgaatttgtc	acgatgccaa	cgctcgaagc	ttccgaattc	gttgagccac	600
gaggaataga	gacgagaaac	aaacggctgc	cagtgcgcga	ggatacggag	gaaacgggtc	660
ttattcatca	tttattttgc	agcagggttg	cctcttcttt	gcctttgaga	tagcggtaga	720
tagcagcttg	tgctccaccg	gtttctcatc	gctattgtgt	ttgtaaatgt	tgttgagaga	780

agaacgatcc	ggcaagcctt	gatattgtcg	cgaagctgga	tctccaatat	gtcataatct	840
ctcttcgtaa	agcaggatcc	agcacagggc	aggcagtctc	gagcggttgt	atagattgcg	900
cttcatccag	tcggccgaag	agatgaatac	ccttctttcc	ccccgttggtg	gaagcaccag	960
atacggctat	gctccaaata	atatccacca	atcgagtgc	acgtatatattg	cgactctgtg	1020
gcataatcgg	accaaacagc	agataccttc	gcacgatcag	atcgatctnc	acaccggctc	1080
ggaagcccga	tagagctgtg	tgatgaccat	tctttgtcct	gcaagccgtt	ca	1132

(2) INFORMATION FOR SEQ ID NO:24

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 665 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...665

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24

attacaagga	aacctcttga	tcgtaagcgg	atcggcagac	gacaatgtta	tcttcagaac	60
acgatgcttt	ttacagaggc	actggttcag	gccaatatcc	cttcgacatg	gctatctata	120
tggacaagaa	ccatagtata	taccggggga	ataccgccta	tcattcttat	actcgcaaag	180
caaagttttt	gttcgcatct	tttantacag	nttttctcag	ttgcttgatg	gggcgagtgg	240
cgaagggggt	tttgttcact	tgctccgttc	gacagtggtc	tctaatagct	ctttttgaaa	300
aaactatggc	gcaacacgtc	aagaaacccg	aatggttgaa	aatcgtcttg	gtgggaatga	360
gaagtttacc	gagactaaaa	gcattgtcga	ggacattgtc	tgcatacgat	ctgtacaagt	420
ggcaaatgcc	ccaatatggg	aagtgcctga	gtagggggac	tgctaccttc	atgatcgggtg	480
gtgatattctg	acacgtgcct	gtcgattttg	caacactttg	acggggcgtc	ccaaaccgcc	540
aatgaagcag	aacctactca	cgtcgcattg	agtatcaaac	tgatgggggt	aaccatgctg	600
tggtgacgag	cgttgaccgc	gatgacttgc	ccgattaggt	gccgcacact	gggttaagac	660
cattc						665

(2) INFORMATION FOR SEQ ID NO:25

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2330 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2330

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25

tttttgaatg	tctgccggac	tgagatttga	tcgtaatgct	cttttgggaa	ggtgatattc	60
agacagtcgt	atgtggagcg	aatcctatcc	agactctccg	gactgctgca	tcggggagtc	120
ctaccatact	tgagatagca	acctcgggtga	tattgacttc	gacggtaacg	gtaagggcgt	180
ctatgctgtg	cagagcgcgg	caaaggtcct	tactaacata	ataaagaaac	aggggtgcgaa	240
aggacatcgg	agactgtagc	ttgcacggcg	gctacggata	tttccggctg	tgtcatgtgg	300
atagtatatg	gaaggctgtc	tatgccatat	cgctcgagaa	gtgcgatacc	tgtccgatac	360
tatccgatgc	cacacgtccg	ggcaaagcca	actcctgatg	agtttacgga	gagatgagtc	420
cgggtgcaaag	agcgagagag	tagggtttcc	ggctttgtct	ttccttcttt	atctctccat	480
actttcaatg	tgtagcggta	gtggagtcag	gcttgttcgt	gaagagcaaa	agcacatctg	540
tcccctatac	caggaaagag	tgaagatcgc	ctgatcaata	tccttgacag	gaagtccgga	600
gccaaacggc	cgactgcgta	cgacttattc	cggctaagat	ggaatcaaga	gacgggggaa	660
gccgggtgcat	cgagataccg	gagcgggaat	gaggtctatg	tcgaaaaggt	cgtattcctc	720
cgctaattctg	tttatccggt	ggcatcggga	tgggaaagat	agaagtcaag	ggctttgagc	780
cgcagtctct	gaaggctttt	gctttggagg	ggaagtcggt	ggttcggaga	tgacctgata	840
gcgatggatc	tcttcttctg	cagtttgcat	gaactcgttc	aggtggcatg	tgtacttcct	900
ccttttattt	taggcaggag	gggttggtcg	gatcgagagt	gattttaata	tcttctccct	960
tttcaggata	gagccgaagc	cgttattgcc	ctcgttgaaa	tataatagaa	tgcgactaac	1020
atcgccctta	tttcgtgtcg	aatctgtgcc	ttgggcgaag	taacgtgtat	ctcttctggc	1080
gaaaggagcc	ttccccttca	attcgcagag	ccagaaccga	atcgccctggc	tgagattgga	1140
gagattcagt	ttgaggtggc	aaacatcaga	tgctctctgc	atgaaagaga	aaggagcagg	1200
acaaaacctg	ctactatata	atatatatgt	tggatggcct	ggacattggg	acggagtgtt	1260
tcatgattcc	gtagaagtcg	gagcagggtat	tcctctacag	tttccggata	gtgtgcatac	1320
tccaagcgtg	gattcttttg	gccagcgtat	ccggagtatc	ttccggaagg	acggacagac	1380
tgcttgacgg	aggattttgc	cgtggtcata	atgtccatcg	aaagatgaat	ggtgataaccg	1440
ctttcttttt	cccttgacgc	aaggacggct	cgtgtacgtg	atgtccgtac	attccttttc	1500
cgccgaactt	gggcaataag	caggatggat	attgacgatc	ctgtcgggga	aggattccaa	1560
gtaggggtggg	ttatataaca	catatagccg	gccagcacga	tcagggtctat	ccctaattct	1620
tcaagagggc	aatgggcttc	gaccccttga	gcattctctg	ggtagtaacg	aataagccgg	1680
tattttcagc	cgatgggcac	gtgccataac	tcctgatcgg	agtgattgct	gaggatcaca	1740
gccaaagcttg	ccgaacctct	ttggcaaaga	aatgacacag	attttctgca	tttgagccat	1800
taccgggaagc	taaaccgcta	cttttctcat	tttatttact	atttttgctg	cacacaaaga	1860
gttgattgtg	cagattttct	ggcgttgata	atggactaac	acggtatttt	cgtgctaaat	1920
ccgctaaaca	gcgctaaatg	aagcacaaat	ataagtaaga	gattattagt	aataaccatt	1980
ttaaagaaca	agactatgtc	tgaagtagaa	aaaaagtgat	cgacctcgta	gttgacaaat	2040
tgaatgtaga	agcttctgag	taacgcgtga	agccagtttc	tcaaattgacc	ctcggagcca	2100
gactctctga	tacagttgag	ttgatgatga	atttcgaaaa	ggaattcaac	atgtcttccc	2160
tgacgaccaa	gcacaggaga	tcaagactgt	cggcgacgct	atcgatatat	cgaaaaaac	2220
ctgaagtaaa	atactccgat	ggaactgaaa	agagagtagt	aacagggtta	ggagccatta	2280
ctccgcttgg	caactctgct	cccaaactg	ggaaagctta	gtggcaggca		2330

(2) INFORMATION FOR SEQ ID NO:26

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 557 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...557

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26

```
ggggacacgc atcagtctgc atagctcggc agagaagggtt tcacgcgtcg gcgaatgccc      60
agcgatccgt ccgaagcgat gaggccggc gccacgcctt ggctgagga tagatgatgg      120
tcagcgggtt ggctgcagc tcgatcaatc ccaggccaac tccggcactt cgtccatgag      180
gccttgagc ttcgctccga atcgatgaag gaccaagcat gctctngctg tccgctcttt      240
ctttcgccgg taaatccgct ggacggcttc ttcgttcgtg gcacgcagc ctatccccc      300
atggtatctg tcgggtaaag gatgattccg cctttgcgca tgattcggcg gctttcttcg      360
cttcacttct ctgaatatcg ttgagcatat cgtgggtata tctctatatt ttcgagagag      420
ccgagtgcgc tcaactcttc agggcaaaaag tatgaatata tgccgtatca atgctttaat      480
atgtcatttc tagtcttcat cggttatttc tgtctgtttc tttattttat aaatgatcat      540
tccggccgga gaaagtt                                     557
```

(2) INFORMATION FOR SEQ ID NO:27

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 672 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...672

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27

```
ggctgcaagt atcgcgtccg gatcagtgc caacgggtatg gtttcattcc atcgaatgct      60
gttggttttac ccggtcatca gggagacgat ttgggtggtc acagctgatg tattcccgtt      120
tggcagaaaag caaactttcg cccaacggct gtcgcgtatc ctctactccc acaagcagat      180
gaatcagcag ttcgacggaa gcaaaaaggaa cgattactat ccatacaggc aaagctgttt      240
tcctctacga caaggaacaa caacctgctt atcgcacttt cgagcagtat atgcgtggga      300
aaacatccct aagtatatgc tcaacagcca gcaatcatgg cgatcttcgg attagatacg      360
gtttgtatgc ttctcgataa ggaattgctt gatttgctta ctctcttccc ttcgaatacc      420
gctacggaaa gcgtatctat gtgatatttg tcgtgaactg tatggcgaga aaggcatttc      480
tttttcggac atttgaacct gcatggcatt atctcttctc ctgtttaccg actcaaacgt      540
ctctaaagcc tttgcttcga ccatttatac cccgtccttc gatttggaag gcgatattat      600
cggtttttga acggatcatg caacctgtat taccgacggg agagcaagga cgacgtttcc      660
acccgacatc ta                                     672
```

(2) INFORMATION FOR SEQ ID NO:28

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2497 base pairs
(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28

gcctatctct	gtgatgacaa	agtcggtact	gactcttttg	tcccaggagt	tgacgttgcg	60
cttgatctca	tccgtaatat	gaggcaccac	ttgcacggct	tgcccaagta	ctcgcccttg	120
cgttccttgc	ggattacgtt	ctgatagtc	tgcctgtcgt	gatattattg	gcacgagtag	180
tgggcgtatt	gaggaacgct	catagtggcc	gagatccaaa	tcggcctcat	gtccgtcctc	240
ggtgaatagc	attcgccgtg	ctcataagga	ttgagcgtac	cgggatcgat	attgtatagg	300
ggtcgaactt	ctgaagagct	acgttgaaac	cgcgagcttg	gagagtttgc	cgagagatgc	360
tgctacgatg	ccttttccaa	gagaagaaac	caaccaccgg	tcacgaagat	atacttagta	420
tctgccatag	cgcgaaaaga	tgtattgttg	atactttgat	cgataaatca	ggggtacgga	480
aagctacccc	aacggaccag	cctcctccga	ttcgtgcgca	aatatacaaa	aagaacgccg	540
ctaaaagagg	caaatacgac	agctcttgcc	cgatgccggc	acatcaaata	agaaatgagg	600
catccgacga	accgcgataa	ggctatccga	ggcaaattac	gcgccggaaa	tgctccgatt	660
gcggttcgta	aattctcgaa	aacacggcga	gattttttcc	gttttggttc	gggaaacaaa	720
aaattttacg	gccaagcgaa	aattttctcg	cgccacgttt	ttacgaacga	caatggagcc	780
gattttggaac	cgagacggca	atatgagcag	catgccccac	gagtcgtttt	ttctctcgca	840
ggataaggta	tttctttagc	tggataagaa	ggaaatgaca	ccaccgattc	atagcaaaaa	900
gcatggtttt	cattccgaca	acaaggtgtc	aatgatgagg	gcaaactcga	tcgtaatgct	960
gccgggcacgt	tgttcgaatc	gcacctgcga	tcaaagattg	gctgtttggg	aaaaagcata	1020
taaatttgga	ggaaatttca	gagtttctac	cctaatacta	catcagaaca	tggctgtctc	1080
atcaatgaag	tttccaggac	gttcggcgaa	tatcttctta	ttcccggctc	actacagaac	1140
agtgcactcc	ccaaaacatc	tctcttcaga	ctcctccatt	aagttcaatc	gcgatgagag	1200
tcccgcgtac	aagctgaata	tcccgttggt	tcggccatca	tcgagtcggt	ctccaatgat	1260
acgctggcca	tcgattggca	cgcaacgggg	gactttcgtt	tatcttcgga	tcgcagagca	1320
taggagtcag	gccgaaatgg	ttcgtcgtgt	aaagaaattc	aaggccggat	tttcaccagc	1380
gattccaatc	tcagaccgga	caatacgtct	gccgatgtat	tgatctggtc	aaaaggacag	1440
gacataataa	tataggtatc	actcacgacg	ttcgtccaat	ggccgtctga	tgggtatcgt	1500
cacgagcaga	gactatcgct	cagcacggac	tcaccctcga	agccgggtcaa	agattttatg	1560
acgccgttga	gagacttacg	gtgggcaagg	tcggtattac	gctgagcgaa	gccaacgtat	1620
tatttgggaa	aacaaactca	atacgctgcc	gatcatcgac	gaaaatagaa	tctgcagtat	1680
ttcgtcttcc	gtaaagatta	cgacagccac	aagaaaatcc	gctcgaactc	tccaactaca	1740
cggacaagac	cctcctcgtg	ggtgcggtat	caatacacgc	gactataagg	agcgagtacc	1800
tgactgggtg	gagccgggtg	ggatgtgggt	tgcatcgact	catcggacgg	ctattccgac	1860
tgcagagcaa	tacgatccgt	tggatcaagg	agaaatacgg	ggacagtttg	ccgtaggtgc	1920
agggaatgtg	gtcgatcgcg	atgggttcaa	cttcttgacc	aggccgggtgc	ggacttcac	1980
aaagtaggga	tcggaggagg	ctccatctga	tcacacgtga	gcagaaaggg	atcgggtcgc	2040
gtcaggcaac	ggctgtaaaag	acgtagccaa	ggcacgtgac	gactattacc	gacgaacggg	2100
cacttacttc	ccatctgtag	cgatggaggg	ctcgtacatg	actaccacat	ggtgctgcat	2160
tggccatggg	tgccgatttc	ctgatgatgg	gacgctat	cgctcattcg	acgagtcgcc	2220
gaccaagaag	atgaagatag	gcagcaatat	cgtcaagaat	actggggcga	aggatcgaac	2280
cgcgctcaga	actggcaacg	ctagacagcg	gcggcaccga	gacgctcaag	ttcgaagaag	2340
gagtggacag	ctcgttccat	acgccggtaa	gatgaaggac	aacctgctca	tcacactcgg	2400
cagatcaagg	ctacgatgtg	cagttgcggt	gtcattacca	ttcccagagct	caagagaaaag	2460
ccaagattac	cctcgtgagc	agcaccagta	tcgtcga			2497

(2) INFORMATION FOR SEQ ID NO:29

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 630 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29

cgaggtagcc	ctgctttgtc	tgtccactca	ttcatatcat	tgaggggaagt	ccatcgaaga	60
taggtgtagc	aaatttgaca	ttcatcttgc	gtcccgccag	gcaagtaccg	cttcgaatat	120
ctgtcccagg	ttcatacggg	agggtaccca	agagggttta	ggcatatgtc	taccggagta	180
ccgtctgcga	ggaacgcata	tcctcttgac	gcacgatttt	ggacacaata	cctttatttc	240
catgagtccg	gccatcttgt	cgccaacttg	gatcttccgt	ttcttggcta	tataactttg	300
gccatttgaa	caataccggc	aggcagttcg	tccccgatgg	tctatctaata	ttgcgacgcc	360
gtagttcagc	ttcaatctcc	ttggagtgtc	tcgataattc	accgcaacag	ccttaatcaa	420
ctcgttcgta	tgtgcatcat	tgtccaatca	ccttaattgga	tcacattgaa	atcaagagct	480
tcaagatctt	tttggcgaat	ttgctgccgg	ccttaatcaa	ctcaacattc	aagtagtcct	540
tacgccacag	caggttttgc	ctttgggtcaa	gttctggtag	cttgtcgaca	gacgcttcat	600
gaagtgggtgc	tgccttttgc	cgtatgtttc				630

(2) INFORMATION FOR SEQ ID NO:30

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1322 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1322

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30

gcaaactctg	aatgatccgt	ccgcacatag	caccgatgta	ggtacgtcgt	gtccacgaat	60
ctcagcttcg	tcatgcaagc	cccctaaaga	aatgcgtagt	atttacgacc	caagctctcg	120
gcaatgctct	tgccaagaga	ggctcttacca	ctcccggagg	gccgtacaga	cagatgatgg	180

gcgacttcat	atcgccittca	tcttgaggac	agccagatgc	tctatgattc	tctctttttac	240
tttctaagac	cgaaatgatc	tctatccaaa	acggattggg	cacgcttcag	gttgaattat	300
ctttactgaa	tacgccccac	ggcagactga	tgatgggtctg	tactactgca	tctgtacgga	360
gtagtcgggc	gattgaggat	gtagccgttc	cacttgcgga	gttctttttc	gaaagtttct	420
gctacctcgc	tgctccactt	ctcgtagcag	ctttgggtacg	cagctcctgc	acctcgatgt	480
cgtttatatt	ccaccagtt	cctcctgaat	cgtcttgatt	tgctgctgca	ggaagtactt	540
ttctgctgct	tgtccatctc	ctcgcgcgtc	ttcatctgaa	tagaagcttc	agttccatta	600
cctgaagctc	cttgtgcaac	aggtagagaa	gacgatacca	cgatccttca	tcttgctgat	660
ttccagcaat	tcttgcttga	cggctagctc	gtggatata	tggccgatgc	aaagttgatc	720
tgatacatcg	gattctgttc	cgtctcatcg	agaggataag	ctcccaggag	ggtctctcga	780
ccatagctcc	atcatcttca	gactcatatc	ctgtatggtg	gagacgagtg	cttgaactcg	840
tgatctttgt	tcttcccggg	gagaatgtct	gggagcagct	tccgcgaccc	ttcataaaaag	900
gttccgtagc	cgttatctcc	tgcagtgcaa	acgctggcgg	ccttgtagca	tagccgtgggt	960
agtaccatcg	ggcatctcca	caccctgatg	atttcagcca	cgaccccgcac	atcatacaaaa	1020
tcggcacgac	cggttcctcc	acatccatat	cgcgctgtga	aacggcacccg	aaatagaccc	1080
cttcttctcc	acgtagcggg	tcagcttgag	tgatttttct	cgtccgacat	gataggcatg	1140
gccacaccgg	ggaagagaat	catattgcgg	agagccaaat	cggcatctcc	tcctgcatat	1200
gatcttcttt	cacttgaaat	cctcacttct	tcacaaacgg	aaagcaccgg	aaagaatac	1260
gggaaccatc	atccccgtcgt	cctctccagg	cgtatatatt	tctatcatca	tcttttagtct	1320
tc						1322

(2) INFORMATION FOR SEQ ID NO:31

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 454 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...454
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:31

catccccggc	aatcccagcc	acataatacca	gaacataggg	gctacaactc	atcgctcaga	60
ttctccgaca	aagtctccaa	agctgccgtc	ctgacttctg	cgccgacaga	gcagccgtat	120
cgcgccctac	gattcgcgtc	acctgttgcg	cccttcttca	agcgaacgat	cgactgcttc	180
gaataccata	cgtactcacg	aataagggtg	gtacctgcca	aacagaagaa	aatggccgat	240
agccaaataa	gagaagccac	agcaaatgca	acagcaatcc	ggaaaaaatc	gtccgcaaaa	300
tggtataaac	acagacaaaa	acaagtccca	agaggatcaa	taggtcaaaa	gaaaaacggc	360
aacgatatag	aacaccgaca	tgaaggcgcc	ttcacctgcg	gtagtttctt	ttattcaatc	420
tttctctccg	atgcaatcat	ggaccgaagc	cgac			454

(2) INFORMATION FOR SEQ ID NO:32

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1317 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1317
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:32

tcactctcca	cttcgagcat	attgcccgcg	aagtgtccca	cctgctccga	ctaattggcta	60
tgatgcggtg	tcggttagcg	gtcaggctat	tcaccaccta	ctgcgctcgg	cttcgtccct	120
gatgcactcc	aaacaaacga	tcgcatacgc	gaagccacac	acatcatcac	attggtatga	180
tagatgggag	caccatcgca	tctgtggcgg	taaaaatcaa	tcctttgtag	tccaattccc	240
gacaaattcc	tctaatacct	tcggattggt	acgttcggaa	gagcagcagt	aagcatacga	300
ttgaccctgt	ccaataccat	actgcccgtg	ccttcgagaa	aacattgtcc	cgctcgtagc	360
cggagagatt	gatgatacga	tccacccctt	cctttcacca	acagtagcca	gtacgggcaa	420
tttccgctct	tgctgcctgt	tggtgcatac	atgggataaa	gcaccaattc	gcctgtgaca	480
tgcgtgctga	ccaattgttc	gggaatatcg	aatccggtgt	atgaggtgtc	ttcgaatccg	540
aatgacccat	acatctaccc	cgtattcgcg	caatagattg	acgtagtttc	aaactctttt	600
ttcgcttccc	ttgctactgc	ttcgggtact	cccgtttttt	ctggaagctg	ttgtttctgg	660
ccgttttcggc	attaaatcca	aaaagaccgg	gcgcaccatc	agcaccgggt	tcgtggcctg	720
cctgcgaata	agagcatgaa	tggttactct	aaaaccttga	tggattcctt	gataatctcc	780
acggttgcg	cagctcctca	cgtgtgatac	aaagtggcgg	agccaagcga	atgtatggcg	840
atgcgtcggg	ttggccagaa	ggccgcgttc	ggccattgcc	tccacacgtc	ccatgcctcg	900
tgtctattgt	gcggttcgat	gacaatagca	tgagcatacc	tcgtccgcgg	accaacttca	960
atagagggct	cttgattttg	gcaactctcc	tctgaaatac	tgccccagct	cctcggtctt	1020
ctccggcaac	gttcttcttt	taccaccgta	agggcagcca	tcgccacttt	gcaggcaagg	1080
ggaatccccc	gaaagtggaa	ccatgctcgc	ccggcttgat	cgtaagctaa	cctcatcgtc	1140
tgccaatacg	caacttaccg	gcaatacccc	gccggaatag	ctttaccgag	cacaacaata	1200
tcgggacgaa	cgtcatcatg	atcgcgcaga	gcattccgtcc	cgttcgtgcg	ataccggtct	1260
gcacttcatc	agcccaaaga	gggcatggta	cttgccggcaa	agctctgcag	cacgacg	1317

(2) INFORMATION FOR SEQ ID NO:33

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 895 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...895
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:33

ggaaaacagt	cggctgtacg	cttccacctc	cgccacgtcc	gcacacaggg	gatctgatcg	60
gaaggatgac	gggcaaactg	atgatgaagc	cggaagagtt	tcttccctgt	tggccgactc	120
cgctttctgc	gattcgctgg	gattcgacca	cactccatcc	gcagcctttt	tctgcccga	180
acatacgaag	tggattggac	attaggccaa	aggacttggt	tctgaggctg	aaagagatac	240
tacgacgcta	ttggacagca	gagcgacgga	gtctggccga	ctcattgggg	ctgagccgat	300
ccaagtatcc	attatcgcat	ccatcgtgga	ggaggagtcg	ggaaatccga	tgaatacccg	360
cagatagccg	gtctctatat	ccgtcgcttg	cggaggggat	gctcttgtag	gccgatccga	420
cgggtgaagt	tgcgatggga	gcttttccat	ccgtaggatc	ctgaatgtcc	atttgtagac	480
ggattccccg	acaacactta	taaaaacgaa	ggactgcctc	cgggcccgat	ccggctaccc	540
ataccgcgac	catggacagc	gtgctccgag	cggatcggca	tggctaccgt	atatgtgtgc	600
caaggaggac	ttctccggcc	gtcaccgttt	tgccaccct	atgccgaaca	ccaacgcaat	660
gcggctctct	atcgcaaagc	actcaagaaa	gggggatcaa	atgaccgaag	aaacggaaaa	720
gcccctcatg	gacggagttg	ggatgagagg	acggagctgc	tcataggcac	ggaagcagcc	780
gacagctccg	gcactcgcat	atactgatcg	tcggcaccgg	cggagtaggc	ggcatgcagc	840
agagatgctc	tgcgtgcaga	gtgggcagac	tgactttggt	ggtgccgatg	tagtg	895

(2) INFORMATION FOR SEQ ID NO:34

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 685 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...685

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34

gccgtctggt	tgaaaagggc	aagatgtctg	ccgatgagca	gcaagccgta	tggctcgtat	60
ccgtacgacg	atggacttca	atgacctgaa	agatgccgta	tcgtgattga	agcgattgcc	120
gaagaaatgg	aaataaagaa	acaggcctca	gtgctgtggc	ggaagtggta	agcgagcaat	180
gtatcatcgc	taccaaacat	cttcattgag	tatcacagct	ttggcaacct	gaactcccta	240
ccccactcgt	gtgatcgga	tgcacttctt	caatcccgtt	cccgtgatga	aactgtagaa	300
gttatcagtg	cccagcaaac	ttcggacgaa	gtgatgaagc	aggactggac	ttgtgcgaaa	360
tgctcaagaa	aacagccgta	cgcgtgaacg	aactccgggt	ttcgtcgtaa	accgtcttct	420
cataccgatg	atcaacgaag	gatcggagcc	tatgcccgac	ggtgtggcca	gcatagagga	480
aatagatcag	ccatgatgct	cggtgccaat	cacccgatgg	gccctttggc	tttgggcgat	540
ttatcggttt	ggatgtctgt	ctggctatca	tggaggattt	attcaccgat	tgggtgatgcc	600
aaatatcgtc	ctcatccttt	gcttcgcaag	atggtcggca	ggacagcttg	gccgaagacc	660
ggcaaaagctt	ctacgactat	agcaa				685

(2) INFORMATION FOR SEQ ID NO:35

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1591 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1591
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:35

taagattcct	ccgatgat	tacccttgtg	ccctacagcc	gtagcttggc	gaaatgaggt	60
atctcattgt	aggggatgac	ggtcttgttt	tcgatttttc	ggccagttcg	cctaagccgc	120
taccagat	tatagccgtt	ttggcatgcc	cggtagacga	gaggacagga	aagatgctgc	180
ctcgtggtaa	tgctgtcttg	gagtttcata	tgcggtatgc	ttataatttc	attcgtgtgt	240
tttgtggcct	ttgccatcag	tttgtatgca	gcttcagctg	cgccggccaa	tatgcttcct	300
ctccgggtac	tttacgtccg	cgcatacagga	tcttcccatc	tacatagtcg	tatccactgc	360
actgctattg	gcagaataaa	ccaagttgga	tagaagttgt	gacagggagt	catttccggg	420
atgtccagac	gtatcagaca	cgatctgcca	agcgtcccgg	agctatgaca	ccggtatccg	480
taccatgat	cgagctccat	ctactgtcgc	actttcgtat	atgtcggttg	ctttcactgt	540
gtagcatccg	aacgccaaagc	tttgccgaga	aaggcggcca	gcttcatgcg	atgatcatat	600
ccaaattggt	ggaagaggag	catccatcgg	taccaagcct	atgactattc	cgcgcttgcg	660
catctcgtca	tagtggaagc	ggtagcggag	gctaatttca	tattcgacgc	ccggattgtg	720
taccacctta	cagcctgagc	tgccagcaag	tccatttcct	catcatccag	ccagatgcta	780
tgagcaagat	tagttgggcg	atagtatgcc	cagtttgtgc	agatacctga	cagagtggta	840
ccgaacttag	cgatgcagtc	ccggacttct	ccttctgtct	ccataggtgc	aagtgtatca	900
gcacattttt	ctcattcgcg	aagcgatgac	aaattgcaat	tgctctccgc	ttacggtata	960
aatggcatga	ggtcctaccg	aaattggatc	ctgtcgtctat	aggagcagaa	tgcttcgtgc	1020
agactgtaga	gcgttctctg	tcgatgcgag	cccgtcctcg	atctcctctg	tcgaagaggt	1080
ggatgatagt	acggcacgca	agcccatctc	ttctactgct	cgtgctgggc	aagggtatga	1140
gcgtacatgt	cgaggaaagc	agtcgtaccg	ctcttgtcat	ctccagacag	gccaatttag	1200
aacccagta	gacatcttcc	tctgtatctg	tgcttccacc	ggccatatcc	agttctcaag	1260
ccaatccatc	agtccagatc	atcgccgtag	cctcggaaga	tagtcatggc	cgaatgagtg	1320
tgaagttttg	caaccggggt	ataacggcca	tggaagaggc	atctataatt	tctcggcatg	1380
acagccaatc	gccggagcaa	cctccacaat	acggttgccc	tgatcctgat	atcctgacgg	1440
acacactcca	cgagtgcctg	ttttatcaat	tgcccaatgc	agtattcttt	taatgaaaga	1500
gggtgcgaca	ggatttcctt	tgccctgtat	gcaccctcta	cggtttcttc	ttacttgtat	1560
atgcggtaaa	ctcggctacc	gattcgattc	c			1591

(2) INFORMATION FOR SEQ ID NO:36

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2239 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2239

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36

tcaactatcg	tccggattcg	tacgtttctca	ttcctcgcgc	tttgtagag	agggtagagc	60
cgactattgg	ctgaggactg	ccatccacct	gccggacgag	gcaagggcgt	agccgtcatg	120
gagtacaacc	tgcctcatca	ggataagtgc	tgattttggc	ttgggacaaa	gcctcttcta	180
tgaattncta	agaaggcaca	gatcggaaaca	gagttcaccc	ccggctttat	cccccttttc	240
aaagaacgga	gcgacagagc	aggcaacata	cggccaaaag	agttgccctc	aatccccggca	300
tgacaaaactc	gacctcttcg	tattcgaagg	aggtagtctg	ctcttgccaa	tacatacagc	360
ttcacggaca	atcaaggcgt	tcgctccatc	gagagggaagt	ccctttctat	ctggtcaccg	420
tctggaagag	cttacgggtg	gtatagagca	tgaccgtatc	gttatctgta	tccaacaaaa	480
tatccgcgac	actctgtcgg	aaaagatgat	ctcaggcaaa	tattggagcc	gttcttccgc	540
atatcgaact	gtgcaaagag	ccggtgtaac	gccatattcg	aactctctct	ccacttcttc	600
ccctatgcgt	gtaatcagag	gtaaatacgg	acacagggtt	tcgatgtacc	caaaagcttc	660
aatgcccgtc	ctacaacgga	ttttgcaaag	agaacctctt	caacatccta	tccaaccgtt	720
tcgatttcga	aggacttcgg	ctatcgacct	attctccggc	acggggagta	tagcattgga	780
attatatctc	gggggtgttc	ttccgtcact	tccatagaaa	aacgccgtga	gcagcagcct	840
ttattcgcaa	cctcattaag	catctgaacg	aagaaaactg	ctgagagtct	tcgagacgga	900
tgtattttta	tttctggaac	gcaacaaaagt	agccaccgct	atgacttagt	ctttgccgat	960
ccaccctacg	ccttgacaga	ctggagcagc	taccgaccaa	agtattagaa	agtaacatac	1020
tggcagaagc	gggcttttca	tcctcgagca	ccctaaggat	ttcagcttta	cagaacatcc	1080
cgattcgagg	aacatagagc	ctacggttct	gtcaatttca	ccttcttcgg	taaatcttaa	1140
acccccaccga	caaatatatt	tcataaatcg	gagctagggt	acgttgtaat	ccttttgggt	1200
acatctaacg	tactcgtccc	ttgatccatt	gcgttacttt	tttatgtttg	acgtctcatc	1260
ggatgtcgga	gccttcgaag	ctgaaatcct	tgaactgaga	agtgaataac	gctgacaaac	1320
agctattgca	tgtttttctt	cagatcgaat	cctcattgtt	ttatagccgt	tcgaatatac	1380
tccgaagggg	ggtcgagcta	cgccctacag	cgactcgggc	tcgccgtaga	gcgtaccgag	1440
ctgcgctcta	cggctcttcg	agctacgctg	agggctcgct	gcgccgggct	ctacggctca	1500
gctcggccac	ctctacggcc	ccggagcgga	actctacggc	tcggctcgct	acgctgtagg	1560
gcgtacctgc	cgagctctac	agcgtagctc	gaagagccgt	acgggatagc	tcgtcatctc	1620
tacggagtag	cgccatctgc	cctgtggtat	agcccatctc	cctataggac	tgcaacattc	1680
ggtcaaaaagc	aatccgaatt	tcaatgttgg	ttcgaccagg	cagaagcagg	attgccccct	1740
atacaattgc	ctgaacagaa	caactataac	ttccaaaata	ttagtgcgtt	aaccgctaata	1800
cttggaacga	ataattggcg	ttttcttacg	ccgaactgac	gttaaatcta	taaatcgggt	1860
cttcccgttt	gtttatattt	gtatctcatt	atcacctgac	agcataatcg	cccgaataca	1920
atactcagaa	aatcgggaaca	gacaatcaaa	aaacctgaat	aacgaaaaat	atagggcgaga	1980
gctgcaagag	ctggaagaaa	gcgggagttc	aggcagctta	ggaatctgat	acacgatggc	2040
agctacatca	tcgaggagaa	agacgaatgc	tcaacctctc	ctcgaacgat	tatctcgac	2100
tgactgccgg	gaagatctga	tagatgagtt	ttatacctct	atctctggag	aggatcactt	2160
ccgggcagct	gttctctccg	tctgctcacg	ggcaatagta	cggcaatgac	agattggaga	2220
ggatgatagc	ggaacgatt					2239

(2) INFORMATION FOR SEQ ID NO:37

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 771 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...771

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37

ccgaatttgt	gaaaataaat	gattgcagta	tgaaaaacaa	tttttacaga	gaagcttatt	60
ggcaatgagc	gtttttttcc	tcggcgcatg	tgctcttttg	gacagaaaaa	cagtataag	120
caggatgata	cgatcttgct	ttatcctttg	ggactacatg	gtattaccac	acaagtga	180
aaacgagtat	ggactccctt	cgtatttcgg	gtatatccgc	catcgtgtcg	agaagaatat	240
ccaaaaggcg	aataccaagc	tcaagagata	caagtgggtc	ataaagattg	gacagtcttg	300
agaccccgat	ggagcctttt	tacctatata	gaaaaggagg	taagcctatg	ttgtagagtc	360
tgacggcttg	cgactgctct	atgatctcac	agagagggtg	gcgacgttat	acccttccc	420
gtcaaccaag	gtacagccgt	cagggtcttt	ctcatgggac	gacaacggtc	attgaaaaat	480
ccacaatcaa	gtcgggtggc	gtgatttggt	tcgacaagtt	tatcgctga	attattattt	540
gcggaaggcc	cgtggccgga	gcaaggtaag	cttgtcgaag	taatcgaaat	ttgggcattt	600
tagagctcaa	tgcccaatat	gaaaaacccc	ttccatagga	attattgtgg	actatatcaa	660
tcccaaacca	ttgctccgat	gcttttcagt	gatgacttcc	gatacaaagc	tcctttctgg	720
gacggacgtc	cttgcatgcc	tatggcattc	caaatagtat	gaccgctttg	t	771

(2) INFORMATION FOR SEQ ID NO:38

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1548 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1548

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38

tcaagggtaa	gcagaagtat	ctcttcgttg	gtcccgaaga	aatatcgggc	aagtattggt	60
gcaacgcagc	gacggcaatc	cacgtataac	gaacgtaaag	atcttatcgg	caagcccgtt	120
acagtcattg	cacatactcg	ctatgccatc	ggctccggca	cctgaacgaa	gaagtggggg	180
gaggatcga	ttcgctatcc	tcagcggaga	tacctcacg	accgaagacc	tgatcacgca	240
ggtagcaaa	gagaaataga	ctacaccttt	gccgatgaac	agttggcacg	antgncngga	300
ccctactacc	gcaatataga	catcagtttg	aaagtaggct	tcgacaaagg	ctgcaatgga	360
tcgtccgcaa	ggacaatcat	tgtctggcgc	gggggtgaac	cgatgggggg	aatccatccc	420
cgacaaggaa	tcgtaccgag	catacagaag	cgatacttcg	agatgagcaa	gagcgacgat	480
gaggtcgaag	ggagcagtc	gctccccgac	ctcgcataca	gctgaggaaa	gggagtatac	540
gcagtacgat	accattttca	agcactatgc	agaggagttt	cggctcgggtg	gtcttggtcat	600
ctgctcgc	ccatcgcccta	ccacgaatcg	cgcttcatgc	cggatatcgta	ggctgggtccg	660
gtgccagagg	tttgatgggt	atcatgcgag	gacaggccga	cgcttcggag	ccgacaagca	720
ggaacttctg	gatccgaagt	ttcggtacgc	gtctccatcc	gatgcctgtt	ggcgttcaag	780
aacgatttcc	cgatgtaacg	gatccggaag	aaaagctcaa	gtttacgctc	gctcctacaa	840
tgccggctcg	ggtcacgtgg	cggacgcaag	gcgtttggct	gcaagtacgg	gggcaacccc	900
aacgtatggg	acaataacgt	ggaggcatac	accgcctcaa	gaaagaccct	aactactata	960
acgatcctgt	ctgtcgtccc	gctatctgcg	aggtgcggag	acgatcaact	atgtacgcag	1020

cgtaatggcc	ggtatcaggc	atacaaacag	aaggattgat	accactactg	catctaaaac	1080
agcatgtttc	aggcacagca	cttgacccaa	agtttcggcg	atttggtctc	ttcgaagacc	1140
tctctttcag	tatcgaacgg	ggcgaaaagg	ttggactatc	gcacgcaacg	gcaacgggaa	1200
aacgaccctg	atgaatatcc	ttacggaatc	gactcaccgg	attccggaga	agtgatctac	1260
caaaacggta	tccgcgtgca	tacctgccac	agcttcccca	agtacttccg	ggcagtagcg	1320
tacggagacc	tgcttcggac	acaacgatga	gatgacctcc	ctgatagcgc	aaggaggagg	1380
gcttcggctc	ggggcgacgg	caaacgcatg	ggaggagttg	cccccgaaat	ggatgccctt	1440
ggcgcggtgg	agtagcaaca	gcgcgcgcgg	agattcttac	ccgtctgcat	ctggacgata	1500
tgcactgcac	cacggacaac	ttctccgggtg	ggagcttaag	cgtatcgt		1548

(2) INFORMATION FOR SEQ ID NO:39

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 646 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...646

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39

ggacttatgt	ggtgaacgaa	agcttcgata	cgcaaacgct	tcctaacggt	ggacaatgat	60
cgatgctgat	ggtgatggtc	acaattggct	atctacaaaa	acgtttacaa	cactgctact	120
catacagggt	acgggtgctat	gttttagcaat	catggacagc	tagcagtggt	gcaaaaattg	180
atttgagtcc	tgacaatatt	tggttaactcc	taagtttacg	gttcctgaga	atggtaaact	240
ttcttttggg	tttcatctca	agagccttgg	actaatgagc	attatggagt	gttctgtcca	300
caaccggaaa	cgaggctgca	aactttacga	taaagctgct	ggagaaaccc	tcggatccgg	360
caaacctgct	ccgatgaact	tggtgaagag	tgaggagtaa	aggctccggc	accttatcag	420
gaaagaacca	tcgatctctc	tcctatgccg	gacaacaggt	gtacttggca	ttccgctcatt	480
tcggctgtac	ggtatatattc	gtctttatct	tgatgacgtg	gctgtttctg	gtgaagggtt	540
tccaacgact	acacgtacac	ggtatatcgt	gacaatgttg	ttatcgccag	aatctcacgg	600
caacgacatt	caatcaggaa	aatgtagctc	cggccagaca	actact		646

(2) INFORMATION FOR SEQ ID NO:40

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 574 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40

```
cggcaacgct tttcatcgta ttagggacgc tgaccaaact gtatgggatg ttggcttggc 60
tttcttcccc tttgtgaaaa gaaaaggccg ctatttgggt ggctttttgc atggttcggg 120
ctgatcggtg tcttgccgat gttgtttgag gaggttctta tgcccttgag cagtatatga 180
attggtttgc tagcctggca cgaagaatgg ggagaatctg ttctccctgt atcaaaacgt 240
ttcccgcctc ggatgggttag gaaaatgacc ggtattgccg gctactccga cttgtgttgt 300
tagtccccgg acttatccta ttcgctcttc ctttcttccg attagtcagt acaaggctcc 360
actctttcgg atgagcatat tggcttcgac tcgcttttca ccgttttatt cagtaccggg 420
agcgaatcga gtacttatat ctacggttgt tgggtgtcgg tatctggttc atacatcgcc 480
ccaaaggga cccgaccggc tggatattac actcttagtc ggaacactat tcctctcctt 540
ttatcgccga ccgatctgtc cctgcggctc ttcg 574
```

(2) INFORMATION FOR SEQ ID NO:41

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1057 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1057

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41

```
gactctaccg cgaaactata gacttttacc ccattcatat cgtataaaga gcttcctgcc 60
ctaaaagaga ctcgggggatc tcgacgagcg catatcttct accggattgg gatataatcct 120
gacagtggga gcatctactg ccaagttgat gtcggacttc cttcgtatgg aagcatattg 180
tcagaatcac cgttgagtca aatactcgcc agttcttact tttagctttt tccacatcct 240
ttacgtacag atattcttct catcagtgtc cttgaggtgt tcnaaacgac gaaattgctc 300
tgagcgcttg cgccgggaga tagtgtgggc aaagcattca ccatttcgtc atttcttcac 360
ctgcgatctg attggaatga caaaccaaaa catcagtcctt ttcacccccg acagattcaa 420
ggatgtaagt ttgttcgatg acaccaaaagg taagcaacgt ccgaattctt ggaaagatcc 480
aaggtcgaaa ctcattgtca ctgcaccaa gtgttaccaa tagaggattg gcactcagac 540
gagtttcgtg atccgattac cgaagcacca aagatcattg agacgaggtt ggcaactgagt 600
tccaactccg tcaggttatt atcagaacac caaagagggc caacttgggg ttgttatcgg 660
tcttcagctc agtcagctta ttcctgcaca gccgaggatg atcaaagccg gattgccact 720
caaggcccaa ccttcattcg ttagagtcgc accaaactcg cagcagcttt ggggttttgcg 780
tcaatccaat gatttcagat tatttttcgg gcattgcgaga taggtcagat taggttttcc 840
gttacatcga cagccgttgc accggtagat cgacagccca atgggtcgtg ttaccataga 900
tagtgagggt ttgcgtcccg atcgtgtatt ctgggtatgc tcatcgaata cnggtattcc 960
tctccttgn ggtaagtggc tccccattga gatcgatcca gatgccttcc ttctctatgg 1020
aatgaaccac aattcgattt tttcgcttac ggcttg 1057
```

(2) INFORMATION FOR SEQ ID NO:42

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1271 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1271

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42

ctttgggctt	caaaaagata	cgaggaccta	tctgtaggta	tatttatcct	gtttttcttg	60
ttttattgag	tggtagtacc	tatttttgtg	atgagagtgg	actctcgtca	tgtcgattaa	120
aaagaaaaca	gaaatgaata	agagtataaa	ggctcaaaga	cagaaaagca	tttgctcatg	180
gcatttgccg	gagaatgcaa	gctcggtcgc	gctatacttt	ctttgcaagt	gttgccaaga	240
aagaggttat	gaacaaattg	cggagttttt	catggaaacc	gctgagcagg	aaaagagcat	300
gccaaaaggt	ttttctcttt	cttggaaggc	ggcatgcttg	agaaacggct	tcttttcctg	360
caggaataat	cggttccacg	gctgagaact	tggcgcggcg	gntgccgggtg	aaaatgaaga	420
gtggacagat	ctctatccgg	ctttgctgaa	acagccgaag	aagagggatt	taaggagatt	480
gcagccgtat	tcgtcagata	gcaaagggtg	aagccgagca	tgaacgtcgc	tatctggcct	540
tttggtcat	gtggaagatg	gatcggctct	cgagcgaacg	gaagaaatgc	atggcaatgt	600
cgcaattgcg	gctatgtcat	tacttccaag	aaagctcgaa	gctatgtccc	gcttgcgctc	660
atccgcaggc	ttacttcgag	ccaatgaaac	gaattactga	ggatcacatt	catatagaaa	720
cgaagtaatt	atctgtctca	tgtttttgaa	ggaggcaccg	ctcgggagag	tcgtgcctct	780
ttttgctctg	ttattccctg	cgaaaagcgt	gtgcgtcatt	ttgttttttc	gaacaagtat	840
agagaccggt	cctgtaaaag	gggactctca	cggtttttcc	ggcatacagc	cggattgaaa	900
agtgctaata	cgatgaaaaa	accgtacttt	tgccgaaatt	acttaataac	caaaccagta	960
accttagata	ccttatggaa	tgaaaagatt	tttatcactt	ggtcttctgc	ttgtgggatt	1020
cattccgata	agctttctgc	ccaacaggct	cagccactcc	ctacagatcc	ggctgttctg	1080
tcggtaagtt	ggacaacgga	ttgacttatt	tcatccgtca	caacgagacc	cgaaagatcg	1140
tgcggatttc	tttatcgcac	aaaaggtagg	ttctatcttg	aagaagatag	ccagtccggt	1200
ttggctcact	tcttggaaca	catggtttca	acggtacgaa	gaacttcccc	ggtaagaact	1260
tgatcaacta	t					1271

(2) INFORMATION FOR SEQ ID NO:43

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 671 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...671

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43

```
gcaaacctcc gacaaagaac tgcattctgca caatgtgaaa ctggctatgc aagggtggag 60
cgacatagct ccattaccct cagttcgcc ttccttgagg agcactgcat ggcgagttca 120
cattgtccaa gctgccttcg atgctcgagg agtgggttggc gcacatcttc ctgcacttgc 180
gggccatagg tcgcagcaag agtgccgact gaggatgtcc gtctgcgttt ggcggttgac 240
ggctcttgcc caaggaagtg tgcagcttct tccggttgcc tttggccgaa gcggttctat 300
caagatcagg gcagcctatt ccgaattgct tcgaagcctc gattgcacat tcgtaccgac 360
aggctcatga ctatgaacaa agagctacgg gaacggagggt gaccttgaa tcatccaccg 420
gcaaggccga actcatctgt cgtccgactt gtatgtgaat ggcgatgcca cgacacgaga 480
cctcaacctg aagcatcagt ggcaaacgac agcatccgtg cccgactgga tatgggacag 540
acaagcgagg agcgaaaaac ggatttatat cgctgctcac aaacttcctc gggacgagga 600
ctcatcgctg aatactcata tcggtctcga tcgctctcgg cacgcatcgg cggtatgagt 660
ggcagatagc c 671
```

(2) INFORMATION FOR SEQ ID NO:44

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1000 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1000

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44

```
agtcctatac agatccgaca tttatgtttt cggacgggtat ccgatgagtg ttttatcgga 60
tatccggggc tctcctcttc ttctttttgt acccacataa ctttttctac gcgagttctt 120
gcacatctac ggctcgtgtt tttcggagaa gtggcgcgag atttttttcg ttctggcgcg 180
taaaaaattt acttctgcgc caaaagcaaa attttccgc gccacgtttt ccgagacatg 240
aataagaaat tttccgaacg caaacaatct gaacggacag tttgccatgt actgaaaagt 300
cgttgacaca cggaaggtt gtgaagatcg atttccggct ctgtcgatct ccctttccca 360
ctaaccgac agatactgat gcccgttac ccgaaaaaag agggagaaaa acgcttgtag 420
aactaaaaaa agatactacc ttgcatcgca atcgcggaag tagctcagtt ggtagagcat 480
aaccttgcca ggtaggggtc gcgggttcga gtcccgtctt ccgctccaag aggtagtagc 540
atgcggccta tggcggtctc ctcatcctga aaaagggtgt atctttccag aaagatcggt 600
cgataacata gacgcccggg tggcgggaatt ggtagaccgc tcgtttcagg tgcgagtgtt 660
caaaagacgt gcaggttcga ttcttgccc ggccaccgact atcgaggaaa agacaaacaa 720
tttttttgcg cgggtgtgga attggttagac acgctacttt gagggggtag tgccggttac 780
ggtggtgagt tcaaactctca tctcgcgtac ttttaatgaa gaggatgttc attgattggg 840
catcctcttt tttttgttta aggaagggtgc ccaatggcgt gaacggtata aatagatatc 900
tttaatcttt gtataataaa aaacaggcag atgaagcagc aggaaagcga gcatccaca 960
```

agtggcgaag ccatcatcat aaaggggcac ggggtcaataa

1000

(2) INFORMATION FOR SEQ ID NO:45

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 724 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...724

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45

ccgaatccaa agtctcaagc tctgcaatga ttgctttctt gctcttcagt tttcgcattc	60
ttcggagcgc atatctccct gttcggcttt ttacggtga agaatgcac gcatgcagtc	120
gtaaaacgct tccatatctc atcactaacc gatgaggaa ggctccgatg gttttccatt	180
tcttttggag ttcggcaagc gagtagaggt ttctttccag tcggaactct cctgaaggct	240
ctccgttctt ctaccatggc cagcttcttc ttgtagttat cggtcagctc ttcagtttgc	300
ctttgaagaa agctgttttc ttattgaaat aatcgtcaca tgcgcgcgga aacgctcgta	360
gatcttctca ttgtcgcttc tgcgagcata gctatagtct tccacttggc ctgaatctct	420
agtacggcct tcgtttgctc gcccatttgg ccagcgagtt cagaccggag gtatctatcg	480
cttccatttc tcacaaagca atgttttcgc agccagattc tcctgctcgc gcatcttttc	540
ttttcgaagt gttcctgata cttcttattg atagcaagta gaagcagctt gaatctcgcc	600
cacacctctt cgcggagttc gcgagctacc ggtcccatc gcgccattga tgatgcagtc	660
ttgcagtacc ctgaaagaat ggatgaatcc gcattctcag tcagcacttc ggcctgatgg	720
atca	724

(2) INFORMATION FOR SEQ ID NO:46

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2863 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2863

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46

attgttttgt	gtgtttatgg	tatgatcaat	gacacaaaat	gatggcacgc	aaggaaaatc	60
atccaacgag	aagagggtctc	attcaggggac	gtcatgtcac	gaatcgatac	aggaaagccc	120
ggaatgtatt	tttgacccaa	gtcgatagct	tacatgagag	gatactatgg	tctcctatga	180
gaggatacta	tggtctacac	gagaggatag	tatgggtctca	tacgagagga	tactatggtc	240
tcacaaagag	gatactatgg	tctcacatga	gagaatacta	tggtctccta	tgagggatac	300
tatgggtctta	cacgagagga	tactatggtc	tcatatgaga	ggaactatgc	tctcacatga	360
gaggatacta	tggtcttaca	cgagaggata	cttgggtctca	tatgagagga	tattatggtc	420
tcacatgaga	ggatactatg	actattgatg	gaagatgcta	tctgctctgt	gtcggatggc	480
aggttcgggg	gtgggagggt	ccgtgcgagc	tggttaaaccg	atagatgaga	ttgtcacacg	540
cattttccgg	gagatttcgt	tgtcaattga	ctgtttttca	gtgtctgtta	tagacataaa	600
gtatcaaata	aagagtcggt	tgcttggcct	gtcgggctat	gaatttgtcc	tgaataaata	660
gaacagggtg	aagagaaggg	tgagccattg	gggtgtagct	cgcaatgagg	gaaaagcaaa	720
tgctcgtggc	agccttggca	gagcgttcgg	cgatggctgt	ctcttctatg	atacttcgag	780
ccattccaca	ccttgtgaga	tacgatgtgc	catacctatt	cccccatgca	tatgccaccc	840
aaatgcaagc	ccggccagcg	catttccatc	cgccggatga	tgccctgccg	agttccgtat	900
cggcgtagta	ttgcggtagt	gcatggcggt	gcgtgagatg	tcagcagatg	ccggcttaca	960
gggtgtgagg	atgcgcagca	atcgcgtagc	tcttccattg	caatcgtgct	gatctcctcg	1020
tcggaaaagg	tatgagcgaa	gcatttccga	ccccacccat	gaatatggaa	tagagtgcgc	1080
cccttcagggt	gctctgccac	ggaaacagtc	cgaagggaac	aggatgcgag	gatgcgacga	1140
ttttccctcg	aagggtacag	gcacccgaaa	gccggcggtg	tgtggcaaca	tttcggcgga	1200
accctacggc	aacctctatc	atggggcata	atagagctgc	tcgaacacgg	ctgattcatc	1260
cgcagggaag	tggtgaacag	tgtggggata	tggtgcgctg	ccaccgtact	caccaagtgg	1320
cggaagggaat	gggtgtgctc	tcttccgaag	catccgtata	ggtaaggccg	aagtgtgtgc	1380
tcccgggtga	ttgatgtatc	ggatttgcgt	ttccgtcagg	agtgttcgag	tccgatgtag	1440
tcggccaaaag	cttcgaccag	aagaccgagt	ccccttgtag	ggaaaagacc	ttgcgcgagg	1500
ctttgcggtc	gcgttgcgtt	gcggctgtcg	ggcttttcga	acggcaccca	gtacgaagct	1560
gccgtatcct	gtccagatc	gtatagtttg	ggcagggcaa	agcgagtaac	cagttggcgg	1620
gatctcctgc	ataaatacct	ccgaggaaag	gatcgactgc	gtagtcacaa	aacttttgcc	1680
cagccggcga	cgagccaagg	ctccgaccgt	ctcatgggtt	gtccgcctct	ccggcggaag	1740
ggttcgccga	ggatacgcca	tttggccaca	gggaaaagag	aggagtagcg	actgcctcgg	1800
cgatgttctt	tgagggggat	acagtttggt	gcctttccat	atcagacggg	tagaggccgc	1860
agagtggcta	tctcagggtc	caatccgagc	agttcgaata	gctcggccac	tccggagagg	1920
agatcgtgcc	ggatttcggc	cctgtctcga	acacgaaccc	tctctctgtg	aggtgcgtat	1980
ctgtccgccg	atatgagcag	ctcgtctcaa	ccagaacagg	cctgcggcca	agctctgagg	2040
aaagcggctg	tggtcagtcg	gtgagcccgg	ctcctatgat	gacggtcaga	tgatccatga	2100
atcaggctcc	ccaccttcaa	aggcaagagc	atagaacgc	atctgcttga	gcatgggacg	2160
aggccgttgg	agcgtgtcgg	cgagagatga	tcttgcaacc	ctactcgcga	atgaagtaga	2220
gatcggacga	aacgatgtct	ttcggtttct	ggcttctcag	atccgtagta	gcagagccac	2280
tatccctttg	acgatgaggg	catgctatcg	gcgcggtagt	gcaccttgcc	atcttgagg	2340
gaggctgcta	tcatacgcca	ctctggcaac	cttcgataat	gttctccggc	accttatctg	2400
cgcacccagt	tcgggtaggg	cactgcccac	atcgatcagc	agttgataac	atccatccaa	2460
tcacgaaaag	cggagaattc	ctcgatgatc	tgatcctgtt	ttcgtttata	cttggcatgg	2520
gataagctaa	tgagtgaata	gtcagtgtaa	gcggctttca	cctgttctgc	caaatacga	2580
atgacgggtt	cgcccacgca	tcgagtacat	ttttgtcgat	gatctgcata	ttgtccctct	2640
gggtatccag	tggtcgccga	agccatgttc	gttcttggac	gagtaattga	taatacagtg	2700
caagggatcc	ctaaattctt	gatcacaggt	acatgatcat	ctgtagagcg	cctccgtcgg	2760
cttggtatgaa	gtagttgcca	tatcctaattg	cgggtgccgtc	tgccatacgg	cagagatcaa	2820
ccccggggga	tagctcttgg	agagtactcc	caatagaatg	tag		2863

(2) INFORMATION FOR SEQ ID NO:47

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 629 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...629

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47

aaagtccaag	gaagagttgt	ctgcttttct	cggctgtgag	catatcgagg	ctgcaaatgc	60
ttcgtcaagc	aggagcaatt	gcgggcgttg	gagaaatatc	gtgccagtgc	cacacgctga	120
cgttgccctc	cgcttagatc	cttcggaacc	gatgcaatat	gtccgacaag	ccgagggtgt	180
gtacaatgct	ctcaaatccg	gcattcttat	ggcttccttt	cgcagggtat	atggaagtac	240
gatatctcat	gcactcgttt	ccatggcaaa	agcccatatt	gctggggaac	tattctatgg	300
aaaaagattt	cggattcaga	ggtttcccat	cgaatagcac	ttccctcat	actctgtcag	360
tacacctgcc	aaaacgtgca	ggagtgttga	ttgccacagc	ccgaagggtcc	cgttatggca	420
aaaatctctc	ctttgggaat	atcagtgaat	gaccgtccaa	tgctttcact	tccgtactcc	480
cgtggcgata	gtaacggcca	gattgcgaat	agagatcatt	tgcctaattg	aggaatctgg	540
tttcgtccgt	ctcttgatta	tgccggactt	tacggatcag	atccttgctg	ttagtcgctc	600
gggaccaatt	tcttggcatg	taccagtc				629

(2) INFORMATION FOR SEQ ID NO:48

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 581 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...581

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48

tacaaactgg	acgttgtagt	tattccgaca	aacaagccta	tcgcccgtag	gatatgaatg	60
atcgtatcta	taagacggca	cgtgaaaaat	atgcagcatt	atcgaagaga	ttgtacgtct	120
tgtcgaagag	ggcagacctg	tacttgtggt	actacttcgg	tggaaatata	cgaattgttg	180
agccgtatgt	tacgtctcgt	ggcatccaac	cacaaatgta	ctcaatgcca	aattgcatca	240
gaagggggccg	agattgtagc	tcaggccggt	cagaaaggaa	ctgttaccat	cgcacgaaca	300
tggccggctcg	tggtaccnac	atcaagctct	ctgccgaggt	taaaaagccg	ggggatatggc	360
tatcattggt	acggaaaggc	acgaatccag	acagtggaca	gacagcttcg	tggctcgttcc	420
ggccgtcagg	gtgatcccg	tcgtccatat	tctatgtttc	ccttgaagat	catctgatgc	480
gcctctttgc	acagaaaaga	ttgcattatt	gatggatcgt	ttaggtttca	aggaaggaga	540
gtgctcgaaa	actacatgct	nagtaagtcc	gtggagcgtg	c		581

(2) INFORMATION FOR SEQ ID NO:49

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 633 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...633

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49

gtgctgatga	cgttagccgt	ttactcattt	atgcctctga	tccggacgaa	cagatctcat	60
tgtgacgcga	gtgttcgata	gcctttcgga	aacactctcg	tcggggaaca	acgactgacc	120
atcaatacgg	ctacagaact	gaatccgtga	ttatggattg	gctctctgcc	ttggacacca	180
atgttgctat	cctgctacac	tgatgggatt	ggtcggaggc	ttcacgatga	tagcccggtc	240
tgattttttg	gtcatggaca	aaacgcagtt	tatcggcatg	ctcaaagctt	taggtgtgct	300
gaagggtcgc	ttcgccgcac	attcctctat	ctggctatga	tgccgttggg	cgtggtatga	360
tctggggcaa	tgttttggct	cttatactct	gctcctgcag	caacatttcc	gctggttgcg	420
tctccttcga	tcctgatatt	tctacatgga	ctatgtgcct	gttcaagtgg	actggctcgt	480
atggattctc	ttaatttggg	tacctctctc	gttaccttct	tgatgctcct	tgctccatcc	540
atattatttc	gagaatttcc	cccgtcaaag	cccttcgctt	cgagtaatgc	ttcaccaggg	600
aatagggtag	gtcatctgtc	cattcgagac	cat			633

(2) INFORMATION FOR SEQ ID NO:50

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2664 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2664

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50

ggcaacgtcc	tccgcagtg	cgaaaacacc	tgcatgtccc	gatatacctc	gaggcatgca	60
gcagcttcgt	cgtccacgg	accgcggacg	atgcttttcg	tagaaatttg	tcgttctgtg	120
ccggtgcaat	gcgcgaaacg	gaatattatc	gagtggaaga	taaccgagcg	aaccggctcc	180
gatggggcgg	aatatagttc	ttcgacaaag	acgttcaagc	tcttgcccga	tactttttcc	240

acaattgctg	tagcaggata	aaccccgat	ccgaatactt	gtagcgtccg	actcattgcg	300
aggggtagaa	gcatggtat	tgaggacaat	ttctttgacc	tcttcgatag	atacagattg	360
gaagaaaaac	gaaacggata	gtccggccga	aatgcccgga	aaccaaaatcg	gagcgaaatc	420
cgaagaatgg	attgccccac	aattgggtatc	tactcgaacc	catccccgaac	tccgccgggg	480
agagagcaac	tgccgtccaa	actgctactg	tctatcagag	attcgtagaa	attgatcgag	540
gccgaaggcc	tgcttcatga	agtagaagct	gctgtacggg	gatgtcttga	ggtctgttcg	600
ggcaaacga	ggcaatagcg	ttccgagccg	gtcggagggt	tcaattttcc	atcctgaacc	660
aatagcatca	cagccggagt	agtggcacga	ccttggtgac	ggatgccaaag	tcgtagatgg	720
tggaagaaga	cacctgcctc	cacgtgccga	tccgtcgaga	gtgccgaagc	ttttgtcata	780
tacccttgt	ctcgatggac	agcgaggata	cgacaaccgg	ggaaagcccc	ttgcttaggg	840
cttctttcgc	tatgcggtct	accgccggca	tcgggatgag	gcggacgaca	attcggtcgg	900
cggcatcatg	ttcgctgtcg	gatcaagtgt	ctcctcttcc	tgaacgaccg	ggatcccacc	960
gcccagggat	accacaactc	gtcccgaatc	ttggaggctg	ccattcgagc	agcctccttt	1020
acgtttcatt	gccacgacta	tagcccagagc	tttgtccata	gccgccggaa	tcctatcgct	1080
acatagggcg	atgtgaagaa	gacgatggca	gtgtggtttt	gttccgtagc	cgggtggagaa	1140
acgttcctgc	ccagtccggc	tgtgtatgtc	gaactggacg	atcacagcat	cgtacccctt	1200
gagtttgag	agcaactctt	gtgtagtgt	ctgttgctgc	ccttggcata	ggaatagcag	1260
tccttgctcg	tgaagccagc	tccttggtaa	aagtattgga	ggctgcacca	tctagattga	1320
cgtgcaata	cggtttcctc	ccgagagggg	gaggaagtgc	ttcttgtttt	tggaaatcgta	1380
atggatgcct	gccaagatc	ttccgacatc	cgttccgctt	ccggctgttt	acctgtcgta	1440
ccacttcctc	tgcgggtagc	tccttggata	tcctttacaa	atgatgagcg	catacttgaa	1500
ggccagaatt	ttgcgacatt	ctcgtccagc	aattctttgc	ttatcgttct	gtcttccact	1560
gcggccagac	ctcggagaaa	gtcttgaccg	ggtccaccgg	accgaggagg	atgtcatgcc	1620
ggccaatatg	gcacggacgg	agatcggttg	agaaccggct	gtctgtctcc	ctgcatggcc	1680
agtcggtccg	taaagatcag	ccccttgaaa	cccatccttg	ccgaagcaga	tcggtgcaga	1740
tggcatgact	gagggaggag	ggcgattttt	ctttgcttcc	aaagccggaa	cattgagggtg	1800
agcggtcac	actcgtgag	gccggctcgg	aaaaactcct	tgaaggggaa	caattcagta	1860
tttccaattc	ctctcgggag	gcaaagaccg	tgggcaaggt	cttgtgcgag	tctctgtggt	1920
attgccgtgt	ccggggaat	gcttggccac	ggccatcact	ctccgtcctc	caatccttgt	1980
gcataggcaa	tccctctttc	tgtactcgc	gtgggtgtgc	gccgaagctg	cgcgtgccga	2040
taacagggtt	cttcggatgt	gtttcacgtc	cagcaccgga	gcaaaattga	tatgaatccc	2100
catcagcggc	attggcgcgc	tacctccga	ccatagttgt	agaggagctg	attgtctttt	2160
ggtgtcccaa	gcccataattg	cgagggaagc	gtggggcatc	tttcaacgca	tgtgcaaacc	2220
ccactcaccg	tccagtgtc	tgaggagagg	ggtgcggctg	cttcctgcaa	gcggcgagtc	2280
atcgtgtatt	gctccgagag	tgtccctttt	ggaagagtat	gcccccgatg	tggcagggtgc	2340
gcaccagctg	ttggcttgct	ttactttttc	ttcctgtaaa	gagggataga	cgatcggcat	2400
ggcagctggc	ctactttttc	ctccgtgctc	atagccttca	tgcggtcgtc	acccagcggt	2460
tgacatcttt	gctctcgact	ccccgaaga	ggagaaagga	tagtctttgg	actgctgggc	2520
atgcatggca	cccattgttcg	tgcgggccgt	gccgtagctg	tgtacagcac	cgagagagag	2580
agtattgtga	tggcggaaaa	agaaatcggt	tcatacccta	caaatgtaca	taaaaatggt	2640
ggccgatccg	agccttcctc	tcga				2664

(2) INFORMATION FOR SEQ ID NO:51

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2706 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...2706

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51

gattcttaga	aaagttgatt	attaacgaca	aaaacaaaat	ataaagatga	catcgtactg	60
actattctca	tcctgctcat	atcgctcttc	cttattctgt	cgtagtggta	cagaactcca	120
aagggggcgg	cttggcagcc	ggcttcgac	cagcaatcag	atcatgggcg	tcgcaagac	180
taccgatttc	ctcgagaggc	cacttggtgg	tcggccggta	tcattgccgt	tctggccatc	240
gtttcactca	cttcctccac	acgggaaagg	tcgatgagag	ccaaaacgtc	ctgaggaaac	300
cctggacaag	aaggtgaagg	aagaaaagaa	ctctgcagtg	atcacttcgg	tggagatgcc	360
gctgctacgg	aatctgcccc	gccccgcacc	gggaggccac	tcccaggagg	gggcaggcac	420
aataaggagg	accggccccct	tcatatccct	tgcaggagat	acggggatcg	acagacgtct	480
ttgtctttga	ccgaggcttg	agggcaaaaga	cgttttgttt	ggcagggtgc	cgctcgccga	540
cgccccggga	caaggctcaa	ggggcgggaa	ggacagagcc	tccgagggggt	acgacaagcc	600
cttgcgaaacg	gaacggacgg	acgtaccgga	aaaaacgcta	gacgttcgga	caaaaacgtc	660
tagacgtttt	gactgaaacg	tctagagtat	cgaagcaaac	gtctagacgt	ttttcgcgaa	720
aggtctagac	gttttacaga	cccacctttt	tggcagaaga	caagagagat	gacaaaagaga	780
ctatcctgcc	cgaatgggca	ccgcaagagg	ccgtacaatt	gacctggcct	cacaccgaac	840
cgactgggct	tatatgctcg	acgaggtgga	aacctgcttc	gtcgcatagc	caccgccata	900
ctccgccacg	agcgactgat	agtcgtttgc	ccgatcgcaa	gcgggtgttc	ggcctgctgc	960
ctcccgagct	gcaccaccgg	tctactgctt	cgagctgccc	tcgaacgata	catgggcccgc	1020
cgaccacggg	gcatttccct	cctcgccgac	ggcgttcgga	tgatagccga	cttcgcctca	1080
acggctgggg	catgaagttt	gccgcccatc	acgacaacct	catcacggac	ggctccacgc	1140
cctgggcctg	ttcgccgaag	gagttaccct	ggacaacgcc	tcgccttcgt	cctcgaagga	1200
ggagcactgg	agacggatgg	cgaagtactt	tgctgaccac	ggacagctgc	ctcttcgagc	1260
cgaaccgcaa	tgccgcctga	gccgcacggc	cattatcgac	acgctgaaag	agagcctcgg	1320
cgtagccgcg	tactctccct	ccgccacgga	gccttgcccg	gcgacgacac	cgcgggcaca	1380
tcgacacggt	ggcgcggttc	gtcgacaccc	gtaccatcgt	catgtccgct	cggaagatcc	1440
ctcgacgag	cactactccg	acctcacggc	atggagcagg	agctgaagga	gctgcgccgc	1500
ccggacggac	agccgtaccg	ctcgtgccgc	tgcccatggc	ggaagctctg	tacgacggag	1560
cggacaggtg	cccgccacct	atgccaaact	cctcatcatc	aacggggcag	tactcgtccc	1620
acctacgatt	cgcaacctga	tgccgtcgcc	ctctcggtga	tgacgggctg	tttcccata	1680
gagagggtcat	cggcatcgac	tgccgtccgc	tcgtcagcag	catggcagtc	tccactgcgt	1740
cacgatgcag	tacccccaa	gattatacgc	taattccaca	gcaaagaact	atgaaagtag	1800
cactcattca	gcagccaaca	cggcggacgt	ctgctcgaa	cgggagcggc	tggcagcgaa	1860
gaccgcgaag	cgcccccagc	cgggtgccgag	ctggctgtac	tcccggaaact	gacaacgggc	1920
tttatttctg	ccagacggaa	gacgtgcagg	tgttcgaccg	gcagagacca	tcccgggacc	1980
gagtaccgat	ttcttcggca	ccatcgcccc	gaagccggcg	tcgtgctggg	gctctccctc	2040
ttcgagaagc	gcgctccccg	ctttaccaca	atacggccgt	cgtgctggag	cgggacggca	2100
ctatcgccgg	aagtatcgca	agatgcacat	ccccgatgac	cctgcctatt	acgaaaagttc	2160
tatttcacac	ccggcgactt	gggctttacc	cccatcccga	cgctcctcga	tgctcggcg	2220
tactgggttg	ctgggatcag	tggatccccg	aagcgcgcga	ctgatggcca	tgacgggtgc	2280
cgatatactc	atttacccca	cggcatcggt	accgagagta	cggacctgcc	tgccgagcag	2340
ctccgccaac	gtaggcgtgg	cagatcgta	agcgcggaca	tgccgtggcc	aacggtattc	2400
cgtgggtggcg	gtgaacaggg	tcggccacga	ggcagaccct	tcaggccgca	cgggtggcatc	2460
acgttctggg	gctccggatt	cgtagccgga	ccgcagggca	actgctggcc	gagctgagcg	2520
caacggaaga	ggcgggtggag	gtagtggaa	agatccctcc	cgaaccgagc	aggtgcgccg	2580
ctgggtggcg	tcttcgggat	cggcggatcg	acgttttctc	cggccttacg	gancgtttcc	2640
ttcgcgctga	ccatcatggc	gagagggggg	atggcgttcc	gtcccttccc	cctccacaag	2700
gagccg						2706

(2) INFORMATION FOR SEQ ID NO:52

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1361 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1361

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52

```
cgtaagatcg tgaagcctat atcaagcgtc tgaatatctg aagcactcgc atgtcctatc      60
cgggcggttat caagacctat gctattcagg cgggccgcaa ctccgtgtga tcgtcgggtgc      120
cgacaagacg gacgatgcct cgggtggaacg ctctcgaacg aaatagccaa aagaatccag      180
gacgagatga cctaccggga caagtgaaga tcacagtgat ccgcgaatct cgctccgtca      240
gctacccaaa taatcccgca caccgggtgga tagtacctgc tcgcatgatg tggcggttatg      300
atttatacct cctcctatca gcagcactag aggactacgc cggcaaagca aaagacggat      360
ggactaccga ttagacaata cgacgacctc ccgacgaagg atgcctgcaa ggggtgtcat      420
agccagccgc tcagcactta tactggctga atgacatccc cgatttgccc gaagatggcg      480
gattcgtgga gtacagttca agaatacgcg caaaggatac tacctcaaca gcgagaggaa      540
gagctgcaca aaggggatgt agtagccgta gaggccaatc cgggtcacac atcgggacag      600
tgacgctgac cggcaagttg gtaaaactcc agatgcgaag catcgataca atacgaacaa      660
cggcgagcct ttcaaaatat accgcaagcc aaacagggcg atctggataa gtactgcgaa      720
gcaaaggcgc gagagacgat acgatgattc agtcccgtca gatttctgcc gagctgaatc      780
tggaatgaag atcgggagatg tggagtatca gggcgatggc aataaggcca tttctactat      840
atcgccgatg agcgcgtgga ctttcgcaa ctgatccgag tatggcagag accttccata      900
tccgcgtgga gatgaagcag atcgggtgcaa gcaggaggcc ggccgtatag gcggtatcgg      960
tccttgtggc cgccagctgt ctgctcggcc tgggaagatga atttcgtatc ggtgaatac      1020
agtgcagccg ctatcaagac ttagctctca atcctcagaa gctcacgggc ctctgcgcaa      1080
gtcaaatgc tgcctcaatt atgaggtgga tgcttatgtg gaagctctaa gaagatgccg      1140
agtccggaga tcgtcttgga gacgaaagaa agtgcgacca ctatttcaag gcggatgtat      1200
tccgtcggga ggtttcgtat tctacgttcc caatgctccg gtcaatctta cgactatatc      1260
ggctcgtcgt gtttcgaggt gatcagccag aacaagcagg ggttcaagcc ggtatcgtg      1320
gagatgacga caagaagcag tcgtccggac acgaattgtc c                          1361
```

(2) INFORMATION FOR SEQ ID NO:53

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 751 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...751

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53

```
gtgttttttg cgataaggtc tgaccttgaa aaaaaggatt ctcaaattgt caatatattt      . 60
```

tcctctatgt	cttatcgatt	ctgatata	acacaacttt	tcttttgaag	tgggtatcag	120
gcttatgttc	tatcctttta	tggtcatttc	atattgatcc	ctaattgctta	tgtattgtca	180
gataaaatat	ggcaaaagg	gtgattttgg	ctattttggg	tgtgttctca	ttctttatgc	240
ttaagatctc	agcagtcag	ctgaaccata	cgctaactat	aagtctatac	tctttgaaaa	300
atactgttta	gagaattatg	atcgtgcatt	ctcccttggg	cagggtgctta	ttcctccata	360
caacgtggag	aaatcagaaa	tcgagtctga	tttgaaatag	cctacttgaa	tgtagctaaa	420
atgttttatg	acaaagctcc	cgcaatcaat	ataagacgat	aagggaatac	aggccactga	480
atccgaagag	atcgccctcca	tgcaatacca	ttcgtaatac	cgatttaggt	ttgcttgtca	540
ttgtcagact	cttctgttct	gagatattta	ggatattttc	tgtgtaaaca	gaacagaaga	600
taaaaagaat	gatgagagcc	tgactttgtg	ttgccacgtc	tttttcctac	aaagtaattc	660
gacataatat	gataaccgtt	gcccattgat	caataacatt	ggccaatcag	gaccggggat	720
agtcatgcgc	gacatattcg	acacatggat	c			751

(2) INFORMATION FOR SEQ ID NO:54

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 911 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...911

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54

aggttctccg	tctcacacag	atcgatgtgc	acagtttggg	tgagctgcgg	tcaatcaagc	60
actgcgcaat	atcgaagctt	tctacgaagc	tttcaataac	agcctactga	taagatgtat	120
ttggaaccgg	aaaagcgtgt	agtcgttggg	aagctgaccg	acactcctat	acgggaaaag	180
aggctacgtt	ccgaggttat	tccttggaac	gcagcctctt	tcgttagaaa	aggaaccta	240
tcggaaggaa	agagcataag	gaggggttat	aaactcggcc	tatcgctcat	cagataatga	300
gaccaattcg	agggacgctt	ggtaacggct	gccaccaata	cacgatcttg	gccgcaaagg	360
cttctgccaa	tggctcggcc	gcagcttgta	cctagccccg	gtagtcagca	catcgtccac	420
caaaagaaca	cggataccgg	cacgcgcgta	ttcggggaga	gggcaaactt	ccctttcatg	480
gctgactttc	ttccgaatag	gactgtccgg	tctgactgtc	cgtatatacc	tttctgcgca	540
accttcttga	acagggtattc	ccgttacgcg	acttaatcct	tgtgcgatag	gagtgccctga	600
ttgtagccac	gcttacgttg	tttgctggg	tgtaaagaac	cggcactatc	agatcgtaat	660
ccttggaacag	gaaaggatag	gatcggcggc	cattcgtccg	agcatttcgc	cgatctcact	720
gtatcctcca	tatttagtgc	gtgtatcata	ggccttacac	ccccgtcttc	tttgaaaata	780
aaaagctgta	cagcgcgtcg	atataaacat	ccccattcag	acgatcta	ccaattgc	840
cccttcgata	taccngggca	ttctcaccat	gcaacgagga	caaccccgat	ctccgtctcg	900
gcgagcaagc	t					911

(2) INFORMATION FOR SEQ ID NO:55

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1317 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1317

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55

aaacgtatcc	tcatagcctg	cccctccttc	gtgtgcgact	gtctggagac	ctcgaagaag	60
tagccgatca	cggacaaagc	attttcaaaa	aagcaggagt	gcggatttca	cttacatccc	120
ctgtctcaat	agcggggcga	attggatgat	gctctccgaa	acattttaga	ggaataatac	180
agcatgctca	gttatctacc	gatataccga	cagacctgcc	cctcctgagg	caagccgtcg	240
aagcctccgc	cgggaagaat	ccggcgggtgc	cgtacccgac	tccgatcggc	cgaggtgata	300
tacgaggcgc	gcaaccggct	ttacgccatc	cgtaccgcac	aggagagcag	gtggtgaaga	360
gcttccggat	ccctattgcc	attcagcgcg	tgtctactca	ttcttccgcc	cctcgaaggc	420
tgctcgctct	tatcgcaacg	catacggctg	gggcgatgcg	gcatcggcac	tccgcgaccg	480
tcgggctatg	catcgaacgc	gaaaaagggc	ttctgtgcag	gagctactac	gtctgcgaag	540
catgcacgac	tgtcgggata	ttcgtctctc	catgcaggga	gtggaagggg	cgaggccttg	600
ctccgtgcgc	tggccggatt	catcgcccga	atgcaccagc	aggcattcat	cacattgatt	660
tatcgccggg	caacgtactg	tatcggcaga	cgagaaaggc	gagtattcgt	tctacctcat	720
agacctgaac	cggataagtt	ctacgacaag	ccgattgtgg	ggcggaaaagc	ctatgccaac	780
tttgacgtct	gagcttttgt	ccggcagtga	gcaagcagct	tgccgaatat	tatcagaggc	840
acagggcttg	aatacggacg	gagtggtcca	aggggtacaa	aggaatcgga	tcggttcttc	900
cgcagcaaag	tccgcaagta	tgctcgcaag	gattgggtgcg	cgaacaaaag	cgaatgagcc	960
gctccgcttt	ccgtcgggca	atatccgcta	tcgctcggtg	cgccttatcc	gaaaactcac	1020
gggctgcacc	gtctcttccg	tatcgagaac	gatctgtaca	catcctatct	tgaagtggcg	1080
acctgcgcca	tacactgaaa	agagccgaag	gatattcctc	gccgaaaacg	ttcaataaga	1140
aaaaaggaaa	ccgaatgaat	cgtatagctt	ttgatgcaag	agaatcacat	ccaacgccac	1200
cgggctgggc	aattacagcc	gcttctggtc	gaagccttgg	ccgcctttca	ctccgaacac	1260
cgctactacc	tctgtctccc	gggaagggca	atccggctct	gtactccgcc	ttgcagc	1317

(2) INFORMATION FOR SEQ ID NO:56

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1820 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1820
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:56

aaaaaatctg	atcatacgcg	ttgcagacaa	tggcatagga	atagataaac	tgatcaggct	60
catatcttctg	acatcttcta	tcgaggacag	tccgctacga	aaagcatgga	tcaggcgctcg	120
gactctcgtt	taccaatata	ctggctgaaa	ccttcgaggt	acgatcaaag	tggaagcca	180
gccggggaaa	ggaagtcctt	caccatcagt	attcctacac	aaaaccagtc	ctcttcggca	240
gagatcttcc	ttggctaccc	tcctccgatg	acattgtcat	gcctgtccac	atcggcccga	300
tgactcaccg	acatctccga	tggtagcagc	tctgaatcat	cgctcgagga	cgaacgtccg	360
accatactgc	tcgtcgagga	caataaggat	ataacctgct	cgtaaaacta	ctcctttgcg	420
atcgctacaa	tgtgctatcc	gcgcaaaccg	aaaagagggt	atagccctcg	ctaccgagca	480
tattccccgac	ttatcattac	ggatattatg	atgccgataa	tggtatggg	agaaatgaca	540
tccggatgaa	gcaatcgctt	ctgctctgtc	acattcccat	tgctcgttga	cggccaagag	600
taccgaacag	gacagattgg	aaggaatcaa	aagcggttag	tctcttatct	atgcaagcca	660
ttctctccgg	aggagctttt	gatgcgatcg	agcagcttct	gaaagaccgt	gagttgctca	720
agaagtctta	tatgcaaaac	tcatgctgga	tcggaagccg	gaggaggagc	ctcaaccgat	780
agatacagca	gtatgcagtt	tctccttgct	gccaaagatg	cagtgtccgg	tggtacaaac	840
aaaatccgga	tttttccgct	caagacttgg	ccgaaaaaat	gtcatgagtc	catcccaact	900
caacagaaaag	ctcacgagtg	tcgtagggtg	cccaccatcg	gctacataca	gcagatcaag	960
ataaaaatttg	cctgcaagct	cttgccgatg	agagcaaaaa	catctccgac	attagcattg	1020
aggcaggctt	tcggatccgg	cttacttctc	tcgcaccttc	aaacgctaca	tgaactgcct	1080
ccctcccaat	atcggcaaaa	actccttgcc	atgccgggga	gcgacaagag	acagtttgat	1140
cccaatgaaa	taaggagctg	tacgcaaggg	ggggcctgtc	gtacagctcc	tttcttcgaa	1200
attcgatccg	aactacatca	tcgaacacga	cttttctcac	aaaggctccc	tgatccgcat	1260
tcactttaag	caggatgtcc	ctttggtcaa	agatccgaca	cccatttcca	ccttatcgcc	1320
gctaaggcac	aatcacggat	aagcttacc	tgcaagtcgt	acatgctcag	attgtgatgc	1380
cgttggccag	aatcactaac	cggctccgtt	acggattgag	aagactgcta	cctgagcttc	1440
tgctgaagg	gttgccattg	aggtaaagag	ttgtacgtat	agatatagtc	gaatatagga	1500
gtagccacat	ctccttcgtg	gaggaataag	tctctttcag	tcgctttgcg	ttgaatccgt	1560
acataattagc	caggctctgtt	ccggcattga	cggaatgtca	atgacatttg	cggagatgac	1620
ttatcgctct	cgatgtctcg	cttgtaacac	tttgtgtcgg	taccgtaata	gccaaatatt	1680
gtatgcagat	attgtcctca	taggtgtatt	cctctttttg	agtacttgcc	atgcctttcc	1740
ttgctggacg	acgaagtact	cggcttcacc	atattatctg	catcgtcata	gctgtattcc	1800
gttttgcccg	gtgcttgaat					1820

(2) INFORMATION FOR SEQ ID NO:57

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 513 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...513
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:57

tgggctgtcg	tattccaacg	tgccgaaggc	gaagtctggg	ctgccaccgc	catcgctctt	60
ctcagagact	ctatttccgt	cttgccggcg	acggactcgt	atggcagaaa	acggttactc	120
actgttcacc	gagcgagata	gctgggaggt	gacgctgttc	tctttttctt	gcgttggggg	180
tatacacctg	ctgatacaca	ttgatccgcg	aaatacggaa	acttcccccc	ggccatgccc	240
tacgcataga	gtcggagagg	gtattacgac	cactgcctat	gacacagtag	accgtatgcc	300

ccgttngaca gccatttttt tatcttatga aggaggntta aagagtnnct gaacccccgc	360
cttattcttg ccggcaagag actcgttcgc tactgaatgg cagatcggcc atacttcccc	420
tttccggagg atttcgactc gggatgatag cctacatgct gcacgcgtctg aagtaccac	480
atgtctattt tatctcctat ggcaaaggagg aaa	513

(2) INFORMATION FOR SEQ ID NO:58

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 711 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...711
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:58

ntccccggcc cacatcgtcc aaacgggcag cagcccttcg ttttgctcac gaaagcgacg	60
agactttctg ccatatcggc tgcacgttcg ggaaaaagat gttgtacaag gggtagggcag	120
ctcggtaggt gtcccagagc gagaaggact gtagtgtttg cgtgccgtct ttagcgtatg	180
gatctttttg tccgctctct gtaacggcca tctgcacgc tgaaaaccgt cgggcagagc	240
agacttgata gagcgcggta tagaaaatag tgtccactcg gggcgatatt ccttttccgc	300
cactatacgc gacaaggcac gttgccacag cagcgatgct tcccacggta gcggtcgaaa	360
tcgtgggtggg gagcttcttt cgccagattg ttgccgtcc cttttcgtcc acgcccgata	420
gggcgggtgga gatcgtcagc ggctgtcgga cttggctatt aaaaacgaaa ggtgggctac	480
aaggccgtaa caatgaattg cgctgtatcg ttattggcat attggggtag actgtctatg	540
tgaactgctc tatcggaaga gaaaatctgc tgcggaagaa tatgcgctat cccgtgcccc	600
accgtccgag aagcgataac cgcttatcgt gtggctgcga tcagctgcag acggcttgtc	660
tgctgctctg tcccaattca tcgtgcattg agatcgaggc gacttcagta c	711

(2) INFORMATION FOR SEQ ID NO:59

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 796 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature

(B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59

atgtacaagt	gaacaaaaaa	ctcgctcccc	atgagtataa	gatatggcgg	actccgtccg	60
ccgcagtatt	gccgaattgg	gaactcctat	tgcatacgcc	aaacgttcaa	tgtgtcgtat	120
acgttgccga	ctgccccaaat	atccgcatga	attgggtgaa	tggttcattg	acttataatg	180
ccgtgtataa	ttgggacgtg	gagcgaaaac	gactaccgaa	caaatacattg	ggaacacgat	240
ccggatcagg	caacgctgga	acttcccctg	caactcaatc	tgacatcgct	gtatgcaaat	300
ctgctttcct	caagagaata	gagcagcaca	tcacgaatcc	ggaaaaaagg	atcctgtaaa	360
aaaagcagcc	cagccattga	ccaagaaaaat	ccgttgctcc	ccgattccac	ggtaacactg	420
acgcacactt	ttgcgtccaa	gaagtgaag	tgtccgctct	cgggccggat	ggcaagatgt	480
atccgctgaa	acaaaaatca	aggacaagaa	tacaatcgct	attttaaata	atgacagcaa	540
gagatcaatg	taacggtaac	tcccccgagg	cagaacggct	ccactcctca	ttcgggtgcga	600
taggcgaaaag	gatggtatac	gccttgatga	tgctcaaagc	atcaacctta	actaccggca	660
atcgtccggc	ttgcatctgc	ccggatcctg	cccaacatca	aagctgcagg	cggacaaggc	720
tccgtggatg	gtgtttggca	ccgggatggg	actttgcttt	cggctcttacg	ggagaagatt	780
tcgtgaaaaa	gccgcg					796

(2) INFORMATION FOR SEQ ID NO:60

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 766 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...766

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60

ccgttcaaca	cataagtccg	tttgtcggat	gccccgggctt	gccaagtga	gtcactgtct	60
gccccggatac	agaccattgg	agattctgta	cgggagcgat	tcattgccac	cttctccggt	120
cactacaacg	gacgcagcat	cgccgggcct	tgtcgttgga	cagtgaatg	ataagtctta	180
ccggcctcta	ccacatatcg	ttacctttgg	agacaccctc	tcctactata	tatattatgc	240
caggatgggg	ttaatgatta	catagtcata	agtgcgggca	ggaatatcgg	ctgagctgtt	300
ccatcaagca	cgaaattcgt	gggagaaaaa	gatgcatcgg	catgaccgga	actttatact	360
cgaagaggatc	gtaaagaccg	gcccgggatcg	ttcgttgga	aacaaaaaag	attcttcggg	420
aatggatgcg	ccgtactgat	ttgatctgca	tcccagagca	tttgatagcc	tgtgccgtct	480
tcccatacat	gtgagcctcc	aagataattc	gtgccatacc	ggcaggaatc	ggatctcggg	540
atccttggcc	ttggatgttc	gaataccttt	ctgcaccgct	tggtgcgtac	agaaggagca	600
gtcttcggcc	ctccctgtgc	ggcagccgct	tgccccaca	caatagggat	aataggacgg	660
cgagcgaaaa	taaagaattc	aatttttcat	accttttgaa	agtattaaaa	gattaatggg	720
tttcgcaaga	atagtctcta	ccactattcg	gccccgaaaag	aatatg		766

(2) INFORMATION FOR SEQ ID NO:61

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1914 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:61

ccctggctaa	tgtctatccg	atcaatagct	tcgacggtat	ggctaccgaa	gtctcggacg	60
ctttcgtttt	acgacgagca	gcactttccc	gatgcgtccg	tggtttcgca	tatcaattat	120
cactccgata	cgcttaccat	tcggaaggag	atccgatgga	gaacatccgc	atccgcctgc	180
gcgagaccga	tgactaaagc	tctccgaagt	cgtcgctcagt	gtctccgctt	tcgggggtggg	240
aggcagcaga	acaagacggg	gctcaatcct	atggatgtct	acacgaatcc	aagtgtaacg	300
gagatctctc	gatggcgctg	cgtcagacac	ccggcctgca	ggagtgggag	atcgtgaggg	360
ctttttcggt	cgcgaggagg	cctcttggga	aaggccgtga	cgatagaagg	cattagagtg	420
aagcgttttt	tcggcaagaa	cgattcgacg	ctcctgctcg	ttcacgtttc	gagacaggaa	480
tgttcagcgg	ctttcgctct	ccaccggagg	ctatggggcc	acggaaggcg	gtgcgctgac	540
ggactactcc	ggttgcgatt	ggcgggtaag	tctccctcgt	ccgtcgggta	ggaatatccc	600
cgctttttgt	aaacgggtggg	gggtgggcac	tttccagtcg	aatcgtttct	atatagagca	660
aaatgcctca	gtgagcgatg	ccgccttatc	cgtctgctgc	tcaagccgga	gtacaaactg	720
cccggtagca	accgccttat	gcctacaatg	cacggacgat	atggaacccg	acttcgcaag	780
atgagtgaag	gggctttttt	tcttcgtaca	cgacctttcc	tcttcggctt	tgccataccc	840
tctcctgcaa	ctgcatatat	gctctatgcg	ggacgaaaca	ccatggattc	gggatggctg	900
tttgagggca	tgacttcgaa	ggaggcaaaa	cacctccacc	ctgtccgccg	gctatagcga	960
agaccacaac	cggctgcacc	ccagcttgaa	atcgagccgg	acatagagag	cactttccgc	1020
accgtagagg	cgatgccaat	atccgccttc	gcttcgattc	tcggattaag	gcttggaact	1080
ctcctacgga	tccgattata	catatagcga	agccaagtct	tctgttcgga	ggataaatca	1140
tcagccttac	ccacactgcg	agaacacctt	gtggcaccta	tgccgaagcc	ctcttcctc	1200
tgtcgaatcg	gatctccgct	acagcggatt	gcgcgccgaa	tattccggac	ttaccgagtc	1260
ggctattatc	ctaccggttt	gtcagccact	tacaagctct	ctccttcgag	ccggatcacc	1320
ttgatgcagg	aggctatgcc	gccccggcgc	actactacct	ctcccatggc	atgtgccgca	1380
aaagcgcgaa	cactcgcagc	agtacaacct	gacctatgaa	tgcgaccctc	gcgtacacaa	1440
gtgctacgcc	tccaagccta	tgacaaagaa	attcccagct	gaccacgttg	gctcccgatg	1500
gcacagcctc	caacctcgga	agggatatgc	acgggggctg	gacttcttct	ggaaagcatc	1560
cggactgaca	gatctttcga	gcattgggtc	tcctattcct	ataccgatgc	tcgcaggagt	1620
atctcttttc	gcccgatcag	gaacgaccgg	atttcgtagc	caagcaactc	tttccaccgt	1680
gctgaagtat	tgggtgtgctc	ctatcagctc	actatcaacg	tgtcgatgtc	ctggcggttc	1740
ggcatgacct	accacgatcc	caactagcct	ccccggctta	tttgaacgca	tcgctaccgg	1800
ccaatttcag	catagtgcct	cgtacaatta	cccattcaag	tacaagaaag	ccggcggtgt	1860
actgtcttca	gcgtgcacaa	tctgttcaat	tcggatccca	cctacggcta	tggg	1914

(2) INFORMATION FOR SEQ ID NO:62

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 355 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

i

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...355

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62

cggaacgatc	cgatcgaaac	cccttttttg	cgatagagac	aaataagacc	aggtatgaaa	60
cgattgatta	tcgcaggcgt	tttggcatgc	gccttggtgc	ggtatatgga	cagagagtac	120
tgagcgtgaa	cgaatgccgg	cgccttgcc	cgaacacaac	agagacttgg	ccataagccg	180
cgaaaagata	aatgcgccac	cagtactcgc	aaagccgctt	tcaccagcta	cctgcccag	240
ctctcgccac	cggctacttac	ctgcacaacc	agaaggaagc	tatcgctatt	gagcacgagc	300
agaagcacia	gctccagaat	ctcgggtaccg	accttggtcac	agcatagggc	agaat	355

(2) INFORMATION FOR SEQ ID NO:63

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 642 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:63

cggctcgtgc	aggacaatac	atgcttgtct	gtacggggcga	tatggaatcc	ttatggaaga	60
tgcctcatgg	atagagttgg	cttccataga	agtagcaggc	atacgagcac	ccattcatcg	120
ttactggtgg	cctccaaccc	acagatcatc	ttctcacagt	tcacgaggcc	aatcccgaga	180
cattgccgac	tttcagatta	caaatgaagg	tggtgctact	ttctccggga	aaatcgaaat	240
agtggataaa	aggctttctc	ggaaactttc	ttccaagcga	aagaagaaca	catggtctcg	300
cccaaggggga	aaccaaagta	ttgtctccgg	agctgactgc	gaatcttctc	tctatacaaa	360
tgccgaactc	tttcccgatg	gcacctatta	catgtcatca	gagagcaggg	attttgggat	420
ccgacgcatt	tgtttgggga	cattactatc	gtatccgtct	cattacggat	ctatcctctt	480
cggacatcgc	ggtaagggatg	tttctactat	agtactttat	cccaatcctg	ctcacgactt	540
gtccatgtag	ccattcctcc	cacatatgcg	ggcagcacac	ttcgtttgtc	gatattcaag	600
ggcgaatgca	gctctccacg	aagatcgaat	ctgccgaatg	cg		642

(2) INFORMATION FOR SEQ ID NO:64

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 307 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...307

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:64

ctttgaagg	gtcccctctaga	ggatccccgg	gctgttcgct	ttcttttgg	cgggccgatt	60
tgaggactga	ataggaaata	aatgttttat	aagacaaaca	ataagatgca	gatgagaaca	120
tttcgtgtcg	ttgcgatcgt	ttcgtgtct	tttcttcttg	gatgacgctt	acggcgcaaa	180
agaatagttg	gtgggtgggtg	cccatgccgg	acgcgagtac	ttcaacaaca	caagtgagga	240
tatgagaaag	gatggaatac	cggagtagtc	ctgcgctact	atttctccga	tcgatatatt	300
ctttggc						307

(2) INFORMATION FOR SEQ ID NO:65

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 654 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...654

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:65

cggcagaaat	aggaaaaaag	gaacggatgc	atgtcagact	ccggttggag	agcttaagct	60
cggagtccgg	acctacatgc	tggcagaacg	tctttttccg	ataagctccc	cactcaaagt	120
cgccacttgg	gtgctatcga	tattatgcag	ccgctaaccg	ccggctggac	gatctgcgcc	180
tgaaaactcg	tgtggaacgg	atgccggagc	tttgaccata	cagggcagca	tcggcctcga	240
ttctcctggc	gacttgccga	tgtagatgct	catgcgacta	ccgaaagact	ggaatcaagc	300
tcatggcaga	ccggcacgat	tggcctgaac	atgtggcggt	cgactgaaga	tgaaggcccg	360
actggctgcc	ggcaatctcc	tctcggaag	tgggaggggac	gcgtgtcgca	cctgactttc	420
cgaggctata	cctatgagga	ctgacgatcg	acttacaggc	cgacaagggg	cagtggctcag	480
gcatacctgaa	atgaacgacc	ccaatggcca	tatccggcta	tcctctgccg	gagagggggcg	540
cctttctctt	cgagttcttc	ccggttcgaa	tggaaatctga	cagcgcaaaa	cttcgtcccg	600
atcgactttt	gcccgccttcg	gactgccatc	ggccgatctc	ttctgatttc	ttcc	654

(2) INFORMATION FOR SEQ ID NO:66

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 654 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...654

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:66

cgtattcaga gcgatatgct gctttctact gccc aaaagt ccaagaacac tggttcggca	60
actcctatat catgggtata atcaagaaca attatctgag tttggtgccc gtttcgagga	120
tctctataag cccctgccc gacatgaccc gagatggggc gtggcggtcc tcacatgtat	180
gtgaagggaa gctatcttgg gcggagctga ctatgggaga cttctacgat cagttcggta	240
gcggttggtt ttccgcacct atgaagagcg caacctcggg atagacaacg cggtcgcggc	300
ggacgtatag tactcactcc tttt gatgga gtgcgtgtca aggtattgca ggacagcagc	360
gtaactactt cgaccgcacg ggcaagggtat tcattccggc cgaggctacc tactgggttc	420
tgatctggag ctgaatgtag acgttggagc agtgccatgc gcgacaatga ctatcatttg	480
gctatcgggg atcgttcgtt tccaaacacg aagcagacga agatatattt gtgggtgtag	540
cgaagatcgc aagcgactca acctgccgct caatgtcccg attatgggct gcgcaccaac	600
tttcaaaaag gaggtctcgc cctctacgca gagtatgata caaatacaac gatc	654

(2) INFORMATION FOR SEQ ID NO:67

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1812 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1812

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:67

gcgactttcg gctcgtatct ttccctgata gactgaatga ctctgcgcct gatgccgttt	60
ttcttctatt tgtatcgggt gttcttgcca taggcatgca ttgaacttta atcatatttt	120

tcgcaccgga	ctttgattac	agtgtaatat	gaaaagaata	gtattgattc	gccacggcga	180
aagcttgtgg	aacaagaaaa	tcgctttacg	ggatggacag	atgtggattt	gtccgaaaaa	240
ggtatgaaga	agccaagaaa	gccggcgagc	tcatgaagaa	agaaggcttt	cagttaccaa	300
agcctatact	tcctatctca	aacgtgccgt	caagaccctg	aacgtgtcct	cgatgtaatg	360
gacttggatt	ggataccggg	ggagaagacc	tgcgtctgaa	cgagaagcac	tacggcatgc	420
tgcaaggcct	caacaaggcc	ggactgccga	gaagtacgga	gacgaacagg	tactcatctg	480
gcgtcgagc	acgacgtccc	ccccacgcct	atggagaaaag	aggatccgcg	ctctccgtta	540
tggatccgcg	ctacaaagg	gtgtgcgaga	aagacctgcc	actgacagag	ctctntgcga	600
cacggtaaat	cgtatcctcc	cctattggaa	cgagacctat	tccccacgc	tcaaggagca	660
tgacgaggta	ttggtagcag	ctcacgcaac	agtctgcgtg	gtatcatcaa	ggtgctgaaa	720
aacatttcgg	acgaaacatc	atcagcctga	acctcccgcg	agccgtgcct	tacgtttttg	780
aattgacgac	aatctccgtc	tggtgaagga	ctatttcctc	ggcgatccag	aaggatcaaa	840
aagctgatgg	aggcagtagc	caatcagggc	aagaagaaat	aacccccatc	gccggccctt	900
tcctattctg	cttttcgaca	gaaggcaagg	aaaaaaacaa	gaagagagcg	ttgcacgacc	960
gtagcggtg	caacgctctc	tttcatttca	tctttttttg	ctcggttgcc	gcagatgtta	1020
tttgctccga	ggtctttctc	ctacaagacc	ttgtcgtaca	catgcatcag	ggatcgggta	1080
cggcttcggg	tgagaaacgc	tctatatagg	tacgcccgtc	ggctatctct	tctcgcggag	1140
agagctgtcg	gagaggatgc	tgtccagcat	ggatgcatca	tttccgcata	gtcggggtcg	1200
gtgtacaggg	acgaagggcc	tccggttctt	ccagacacga	acccgtggcc	gcaacgaccg	1260
gcacgcccga	agccaggctt	cgacaatcgg	gataccgaat	ccctcgaagc	gcgaaggata	1320
gacaatacct	ctgctccgcg	atagatgccc	ggcaggaaaag	caaattgggac	atgtgcagca	1380
tgacgagccg	gtctgccaca	cctgatcgct	ctgcacactg	cgcacctccg	cacagtatgg	1440
cgtacgcttc	cctacggcga	cgagccgaat	tgctcggtcac	ggcaatgtgc	caaagcctcc	1500
acggccagtc	ggaggttctc	ctcgtctcga	tgcttcccac	atagagcagg	taacgctcag	1560
gcaaagcaat	cgctccctcg	ctctcgactc	atcctcctcg	gtagcctgtc	cgaaggcggc	1620
gaacaaccct	gatagacgac	atcgatccga	tcggcaggca	cgtggaaaac	tccatcacat	1680
cgcgcttggt	ctgctcgctt	atcgctatca	ccctgcggga	caacgggcag	catggccgta	1740
tttgagccga	tacagcagcc	tgtcacaggc	ttataatagt	gcggatagcg	aatgaagatc	1800
aagtcgtgga	tc					1812

(2) INFORMATION FOR SEQ ID NO:68

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 672 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...672

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:68

cgatttctgg	agggtctatca	tccgatccag	acgggatagc	tttacctctc	gggcacatcg	60
tccgcgaggt	ggcgagcagc	ataagtaccc	ggccgttcga	atacttgaac	atgaaggcag	120
agtcgtaacg	cacctcttcc	atcaggcgag	agtggcttcg	aagtcttctc	ccgtctccga	180
atggaagcca	cagaagggtc	gctgctgatg	gcgcagtccg	gtatggcccc	gcggatagct	240
gctacctgtc	gagataccac	cggcgcgtat	agccgcgctt	catgacgcgg	agcacttgtc	300
gcttccgctc	tgtgccggca	ggtgtatatg	attgcagata	ttgggtatcg	tgccatgacg	360
gcgatggcct	cgatcatccat	atccttgggg	tgggagaggt	gaagcgatag	cgcattgtcg	420
gcacagcttc	ggccactgct	ggagcagatc	ggggaagcgg	atgatccgcc	cgttttgttc	480

gtatcggtag agtttacatt ctgccccagc agcgttacct cgcggaatt cttggcttta	540
gatcccgac ttcgttgagg atgctttcta tttcgcggt tctttctcgc ctcgtgtgta	600
gggtacgatg cagtagctgc agaagttgtt gcacccagca tgatggagac gaatccgttg	660
atatgtacgc ca	672

(2) INFORMATION FOR SEQ ID NO:69

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1412 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1412

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:69

tttcgtagcc atgcacttag tgcggacgaa tgagagagag atcttcttgt ccgtgtaata	60
gatacccggt ctatactgag agccgacatc gttccccctt tattgaggat tgtaggatct	120
atgggtcttga agaaaagatc gagcagcgag agagcgatag ctcactcgga tcatattcga	180
ctcttaccgt ctcggcaatc ctgtggtttg ggaacagacc tcttcatacg aaggatccctc	240
gacatgccgt tggcataccc gacttcggta gccacgacac cacgcaactt tttgagaaat	300
gctcggtagc ccagaagcac ccaccggcaa agtatattgt cttgtctcgg gaatactgtc	360
attatgcttt gccgaagaag agcaactacc ggactaagag aaaaactaaa agaagccata	420
ctgataagaa taagagaaaag aacttcataa caaatcggat tctcttttca tgagaatggg	480
gaagagacag ctcgaagtag tggcaggtcc tattcatgat gatagggtc atggttgaga	540
tagtcatggc acgatacacc tggtcggtag agaagaggcg gatcatctat gagagaaagt	600
cattcggctg agcgatatc tatcggttac agcctccgca ctgcagggtt aaatccatat	660
gggcctccta tgacaaaagac cattcgcggg tgccgatcag cattttcttc tgcaaaaagg	720
ctgaaaactc catgcggaat actctctgcc tcgctcatcg agcaatacgg tgctgtccga	780
cggcgaagac gagcgagtat ctcccgaact tcggcatcct tttgctgttc ggagaaagct	840
tgctaccagc acggacatcg ggtattacct ccacttcgaa agaacataat ggctcaaccg	900
acgaatgtat tcttccgttg cctgaacatc tgtttgctgt cggctcttgc tacaacgagc	960
agtacgatct tcatcagaaa gcagatcatc ccccgcatcg gcgttggaag cccaaccgt	1020
tgccggctgg acggcatgct cggttgttgc gttggaaaag tcggagcacc ggcggcagca	1080
tttcctgtgg caactgctgc tgacctgtct ggcccgatat atccgcgtcc atgcgccaag	1140
ccttcacatc ggtgtaccaa cggccgttga actcacgctt tcaatatcga ccagaccgt	1200
aacctgatcg cctacttgat aggaagatca atacgatctc cccacacgct gaagtgtatt	1260
ttgcgagggt attgtcgagc gtttccagta tgtactcttg ttttttccat tcctttccgg	1320
aagcttgccg actcccgaat tgagtggcag tatctgaata agctgccctt gatctgaata	1380
tccatatttg tttgttcta acatagttat cg	1412

(2) INFORMATION FOR SEQ ID NO:70

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 612 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...612
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:70

```

cccgggtggag aaaatagaga gaaagctgcc atcagctgga cggacgaaag atgaagttag      60
tcaccgaagg agaagaacag atcttcaagc tcatcaggaa aagtaatccc accaccccc      120
actatctctt ccgttcggaa tggaaagcga aggaaaagag gatatgctcc atgcaccgag      180
tgccggcata tcctctttct ttttcagcta ttgctgctga tgaaacagcg tcccccgta      240
gtctacctgc gagagccatc gctgataacg acattgtaca ccttgggttc gcggcgaatt      300
ggttccttgg aatctctnct nggcattctc gacaaagaga tcgacagttc tttcttgacg      360
aggttgatcg tacaaccgcc aaatccgcca ccatgacgcg cgaaccggtc acgccacaat      420
cccgtgctat gccgttgagg agtcgagctc ttcgcagctc acctcataga gacgactcat      480
accatcgtag tttcgtatat tttctgtcct acggtttcgt agtcgtcgcg ctccagtget      540
cgcacacatc gagcactcgc tgcacttctt cgacgacata ctcggcacca tataatcctc      600
ggcagagact tc                                     612

```

(2) INFORMATION FOR SEQ ID NO:71

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1498 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1498
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:71

```

cgtgatacgt gaagcgatgc cttctttggt tccggctccg ttaacgatat agtattgtcc      60
ttatcaaccg ttactttctc agctgtaccg agcatatcat cgtagcattt tcgagcttca      120
gaccgggtctc ttcgctgata accgttcgcc cgtcaggata gcaatgtctt cgagcatagc      180
cttgcgacga tcgccgatcc gggagccttc actgcacaga tcttgaggct gccgcgcaga      240
cggttacaac caagggtggcg agtgcttcgc tgtcgatgtc ttctgcaatg atgagagggg      300
cttgcccgtc tgaaccgttt gttcgaggat cgggagcatc tcttcaggac ggatattttc      360
ttgtcgtaga tgaggatgaa aggattttcc attgcacctc catcttatcc gtgttcgtta      420
cgaagtaggg agagatgtag cgcggtcgaa ctgcatacct tccaccactt ctaccgtagt      480
gtcgggtccc tggttcttc taccgtgata acgccttctt tcttcacctt gcgcatggct      540
cggcaatgag gctaccgatg ttttcgtctc cgttggcaga gatcttggtg cgtgctcgat      600

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cttctggaag	tcgtcgccca	cttccttagc	catacctcaa	tgtgagttac	cacagccttt	660
acagccttgt	cgataccacg	cttcaatcca	tcggattggc	tcctgccgta	acgttcttca	720
gacccacgcc	gataagctct	gggcgaggat	cgtagccgta	gtcgtaccgt	caccggcatc	780
gtcatgggtc	tggaggctac	ttctttcacc	aactgggcac	ccatgttctc	gaagggcact	840
ccaattctat	ctctttcgct	acgctcacac	cgctcttggt	aagtgcggag	ctccgtacgt	900
cttgctaagg	ataacattac	gacctttcgg	cggagggtaa	ctttaacggc	atttgccagt	960
gcactctacg	ccttcttcag	aggctcgag	attccatata	gaatttgatt	tcttttgcca	1020
tagtctttat	atattattat	tatttttttt	cttttttgga	ggattattgt	ctcttcctta	1080
ccactggggg	ttcctgtttt	tgaaggccaa	cctgcagtgt	taacttgctt	gatttttttg	1140
ttttgccc	tagatgattg	ccaagacatc	gttttgcgca	tgatgatata	tttttcaccc	1200
tccagctcta	tttcagtgcc	ggcattttgc	cgtagagtac	ggtgtctcct	gctttgagca	1260
ccatctcttc	gtcttcgtgc	cggtcccgc	agcgattact	tcacccttga	gaggtttctc	1320
tttgccgaat	cgggaataat	gatccccgct	actgtttttt	cttctgctgc	agcggcttta	1380
caagtacgcg	gtctgccaat	ggtttgatgt	tcattgttgc	tggtttgta	ttgttagttg	1440
attgtttgcc	tgtacaaatg	ggaagcctct	atgtagctcc	gcaattttta	tgtcaata	1498

(2) INFORMATION FOR SEQ ID NO:72

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 733 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...733

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:72

agtcgatcag	accctcgca	tcgaaagcgc	gcaattcttc	cgcggcagcg	tacgtcccaa	60
gcccngtaag	tctgcaataa	tcggcccacc	ttgagcagct	atggccatcg	agatggcgca	120
aggccaaggc	cagccgctct	tcgcgagcaa	attgggcccga	cggggacggg	cgtaccgtag	180
ttcgaccag	atgaaccgag	tacgagcctc	gagaatcaat	gccttgctcg	ggcggaaatt	240
gacactccta	tcgtcacgct	ggcggcatta	cggcgtgtgc	cgccttcggc	ctcccgggtt	300
ctacgccttt	gtgcaagggtg	agcgaagcgg	agaaagagcc	gattcctcta	tcttcaccgt	360
atatcccga	gccacgccgt	gggctatcgt	ccagccaagg	ccgtaaccaa	ccctttgact	420
tcacccgggg	agaatgtcga	tgggaggaaa	tcagatcggc	tatctcgtcc	agccccatcg	480
tgctcggct	atcattttcg	gatacatcgt	ccgcttgccc	gtgccttgca	tatcgggcat	540
tctctcatca	caaacttggc	catttcttct	gtacagctat	atcggtttct	catcgccgggt	600
cgattgtttt	cttccggggc	gggaaaattt	ttcccgaaac	cgacaaaaat	aaattttccg	660
gccggaaaat	ctctgtccga	anccttggt	atataaatna	aatctttgga	tatatgttcc	720
aaaactttgt	tta					733

(2) INFORMATION FOR SEQ ID NO:73

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 733 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...733

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:73

```

cggcattatt ttttttctga actatcattt tcttactatg ctgtatgctt atcgtatggc      60
tgcatttttg tgaggccata cgctaaaaac atttcaaagt atgtatttgt ttggataagc      120
ttttccctat catatattat cgctgctgtc taacctctat cattgagtat cgtatcatcc      180
gccagcaatt cgggttaaagt tcccgcgggt attctggtgg tagaaacttc ttgtcaggcg      240
gatagtgggg taagcctgaa cgtacaagaa aattatcatt tgtgggacca aaaacgtggc      300
gcggcaattt ttgtcttttg gttcgggaaa aaataatttc tcgacaaaaa cgaaaaaaaaa      360
ctcgcgcgta aattttcaaa aatacgaacc atatctcgac actttgggtt cgtaaaatct      420
ttttggccaa aatctttcgg aaaaacaagg taagcctcat catctttctt gttgtggaaa      480
tccgtgtcgg atggagtttt acaccgggtt tcctgtcggc ctcttccatc aataccgatg      540
aagcaattcg cagggtctgc aagtttgaac cggatacttt atttttgtct cattacgaaa      600
ctattttcgg acagcgatat gagccaaaag cctacaacga tcggaaaatc atcctcatta      660
ccggcgggca cgttcgggca aaagtcctat gctgagcaga tggcactagc gcttgccgctc      720
atcctatcta cct                                     733

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(2) INFORMATION FOR SEQ ID NO:74

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 3401 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...3401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:74

```

ttcataggta taaacgaaga cagcacgacc tcctttcgtg cccatcgtag gtacacgata      60
tgttgcgctc catgcttccg cctcataagt cctttatgta caatactcca aggattttac      120
cgattggctc ccttattact ggcaaggtag tctcagacta cgcgatatac gtacaggata      180
gatctaagcc ctggaacgat gtcgtacgga tggctnattc gncccgcgcg catgaagaag      240
atacgaaggc tgaaagagac ggactccgct gtacgtcggc cacgggtggac gaccgctgcg      300
cctctgccgt atatccatgt tccgacagga agcatangga tttgcagcgg agacattgca      360
gcggctggcg gaagtcgcca tcgaaaggca tgaggtgaaa tagtcggttg cgaagatagc      420
gaagggcgct tactggctgc ctcttcctcg cccacgatca taacacggcc tacacgattg      480

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cttccggcca	attcgtgaag	gacagggg	caatgccgga	gcttttgtcc	tgtatgaggc	540
atttggaggg	cttgtgagat	ggaaggcatt	catacatttg	acttcgaagt	tccatgttgg	600
aggggataga	gggattcttc	cgctcgttcg	gaggtatcaa	acaccttatt	tccgactgtc	660
caaaggtcgg	attggcttat	atggccacta	agacgtaaat	ggcgagcctt	tcatgatacc	720
ggtcagcaaa	aacagtatga	atactgaagt	aatccactac	atcattcgct	ttctgatcgg	780
agataaagcg	gaaacgatca	gctcctcagt	cgcacgggtt	atacctcgaa	gcaagcgaga	840
tgtcccgata	cagcattgtc	atccgtgctt	caaacttctt	cgttcggata	tttacgtacc	900
gataaggctt	ttcccttggt	accgctgaaa	gatgggaggg	cgtacctctc	ctttttggag	960
agccgaccga	agagctgttg	aagagagcga	cacactgggtg	ctgaatgccg	acattgtcgc	1020
ctctacatat	tctgatctcc	cgctacgaag	aggatgtacc	ggcgtaaact	tcgagataac	1080
acggacgatt	tccgggaaga	gagtccttgc	ctttcaaagc	aggattttac	agcgtcctgt	1140
agtagatgaa	tacggggcca	ttctgcgcac	caaaatcgtc	agatgggctg	gccggtaaaa	1200
gacccagtc	cccatctctc	catgggaatc	tgacgcatga	cgtagacgaa	ccgttcgagt	1260
acagaggatg	gagagttttg	cccgagcatt	gatcaaaagga	acgcaaatct	cccttcaagg	1320
cttccgtctg	gcttatgcc	atccggcaag	tgatcgtttc	ttcacttttc	ccgttttgtg	1380
gattgggata	aaatatgtcg	cagcaaaatg	ccggattgct	gcggattatc	ttcttcttca	1440
aagcaccgcc	aaaggcccca	caggatgcac	gaactattcg	ctgagaaaac	cgctctatca	1500
atcgctccga	tctttgggta	aaacaatgga	atagtgatag	ggcttcacag	caactactct	1560
gccggtctaa	cccagaactg	atcggaagc	agcgcaagcg	acttatgagc	gataccgtat	1620
ggcagtcgac	tgcaacaggc	atcactacct	tgcagctcgt	gagccgagga	catgcaagcc	1680
ctgatctcgg	caggtatcag	acacgattat	accatgggta	tgccgatgtt	gcagggtttc	1740
gccttggtac	atcccgtccc	gttccttcat	tatgccttcc	acaagacggc	tgaccgagct	1800
gatcctgcac	ccattacact	gatggattgt	acgctgcaca	ggcaagagta	tatgggcctg	1860
gacgaagcta	cggccataga	agttgggtgca	aggaaaactgc	tgatgcatac	ttcatccacg	1920
gaggagaagc	cacactcctt	tggcacaacg	aatatctctc	cgcnacattc	atccctggca	1980
tgcccgtttg	tatcgagaag	tactgaggcg	atagaaacca	tggaggaaaa	acaagaggag	2040
gaatctttcg	actacgaacg	gccatcgacc	aatgaaacgg	gtactcatct	tcgccgatat	2100
cttccctcgg	cttttgctcc	gagagctgcc	tatctgacca	aatatctgcc	tcgattgggt	2160
gggaaccttt	tgtaataacg	gaaaaaatgc	cgactccggc	atcccgtcgc	acggcgatgt	2220
gtttgggtgga	ttttgcagtg	atattccggt	aacgctatcg	atctctcttc	ggcttcggtt	2280
ctgtctcaag	cgattcgttc	agccgtctgt	tcggcgaatt	gttttgggag	cagaaagaag	2340
agcgattcta	caagaagcgg	cgaaagcttt	tcccagtgtc	aaattcgatg	ctgtactttg	2400
tttacctatc	gcaagtttcc	ccttgctacg	gcttgccgct	atgcacaggc	catcgattgc	2460
cctgggtggc	ggattgccgc	gatgtgatcg	aacagtacac	aactacgatt	ttcttctcgc	2520
tggcaagcga	ctgccaaagt	tgctgatgag	tggcttcgac	accgctatat	ttctctccga	2580
aaccattatc	tccacaagct	gatcgtgtag	tttcggtatc	accctggcac	tgcaatctgc	2640
tcgcagagtt	aatcctcgta	cagaattgta	ctacaatgga	tatgatcccg	agctttttct	2700
cgaggatcgc	ttccttggtg	caaattcatc	ctctcctata	caggcgattg	ctgactccgg	2760
aaatgcacga	tcctaccctt	ttgttcgaag	cttggcttct	gaagctcttc	aggagggtgcg	2820
caaagagaga	cgaatagagc	tgactgggtat	gtggacgaat	actcccgcctc	catcctgcaa	2880
ccattcattc	gcagtatgct	ctgaaggata	tgtgccgctt	tttcccgatg	gttccggctg	2940
tcaggtagccc	gaaattctcc	gccatagcag	tgtcctgctc	caactgggca	cacagagaag	3000
cccggaggcc	cccattggtat	agtatcgacc	aagctattga	gtcactggcc	atggaaaaac	3060
ccatcctgat	ggtaaggagc	gatgaagtat	cgtggcagat	attatatcgg	aggccgaggc	3120
aggattggct	gcacagcgac	agaagaggta	gccacattcc	tgagtgatca	atacactcgc	3180
tggaaagcaga	aggggatact	tctcttcgga	acccgaacag	gaattttatc	tccatttttc	3240
gcgtgaagag	gaagccaaac	aatatgctcg	tctactggaa	tcgtcgtcgc	taactaaatt	3300
cagcatcgta	tcatgaagta	ctgtgatttt	acccgttgcc	tctcccttcg	gagcctaata	3360
cgacagtc	tgccgggtcct	tcagtgcaga	aagtgaggag	c		3401

(2) INFORMATION FOR SEQ ID NO:75

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 784 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:75

ctgcgcaaaa	agcttttacgg	ccaataagcg	tcttttcggc	cgcgacgagc	gtataagcaa	60
acgagaggag	agataaaccc	gagaagcata	atggctgcac	agcctgcttt	gcttcggggt	120
tgtcaccctt	ctcgctttat	ctatcgcgtt	tcttcggatc	agtttgcggt	ccggcttacc	180
aactccctgt	acatccctta	tacatcggca	gatccacacg	aagagcctcg	gcctcacgca	240
cgacaagccg	gtcagcgtct	ccacttccgt	ggatccgccc	tgcaagaaat	cgcttgcata	300
gaagaagtac	tttcggggagg	catcttccgc	tgtttggtcca	gtactgttgg	actacatcat	360
cggggacttg	cccgtatttg	gcgcggaaaa	gccggccacc	tcttccaata	aagacagcag	420
ctcgggttcg	tgttcgggtca	aatcgagccg	atgggtttgt	cgaagtaggc	cgtagcggta	480
gccgttacgg	gatcatcatg	aatttcttca	taatgtacca	atcgatatcg	gtcggattaa	540
tgcacgaata	cccgcagcag	taagcagttc	ggcaaggcgc	acctcatctc	cgtctgctcg	600
ggaagtcccg	aaccgaaaata	gaaaagtctg	cgatcagctc	cagcgtgatt	aagccggggg	660
cactcttgcg	agcagaaaata	tagacaatcc	tttccatacg	accgtatcgg	gcagataggt	720
acgcatgcgt	tccgcatgtc	tgacccgttg	agcaagggca	ggatcttcgt	gttctgcccc	780
atca						784

(2) INFORMATION FOR SEQ ID NO:76

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1584 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1584

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:76

gtccataaccg	ctaataaggct	tcaaagcgat	gtcacataga	tgtcaattaa	ccttcatatt	60
taagatgatc	gctgtaaaaat	caagggtttta	cagcgattct	tttttatccc	ccttgttctt	120
tgaccgctta	tctctatggt	ttgacagcat	cattcgggtca	ttttccgaca	caattactgc	180
tataactgca	gaccagtctc	aaaagtgtag	tagtgaccgg	atgatgactc	cctgtttaaa	240
agcatgattc	ccctctattt	caatatatca	tgtagatttt	cggcatattg	ctacgaaaag	300
aacgagtaat	gccccctttgt	agatccccc	agagaatccc	ccccgaatct	cgcccaagct	360
ctatcgcaaa	atgactcccc	gccagagggc	ggtttagcgg	ctgtcaaccg	aaagtcgtct	420
taaagagtaa	gggtgtgtaaa	ccataatgga	ctttagagaa	atctctgtaa	ttttaatctc	480
gaaattaaca	tctccgagtg	tcaactcttt	tcagtacacg	tactccaaa	attttcctat	540
gtacgctccg	aaaaacgtgg	ttcgagaaaa	ttttcatttt	ggttcggggg	taaaaaattc	600
ccaaaccaaa	acgaaaaaat	tccgggtcca	gttttttaaa	aacacaaacc	aaaatttcga	660

gaattacggg	tcgtaaaata	cgatccgcaa	atgagatgaa	acagtaaaac	atgtcttttt	720
atctgctttc	ggaacgaaac	gacaaatgga	gacaagataa	aaagaaacca	tccggagagc	780
ttttcccggc	ctctcggcat	agcccccta	ctccgttttt	aatatatact	accttaggga	840
ttgaccctac	aggatttttc	tcgctcgaga	aaatatagtc	gctaccatat	tataactat	900
ttttgcggag	aaattggggg	gttttggcct	ttgggaaaca	atgacaggcc	accgatcccc	960
tgaaacggat	ccgtcgatga	caaaaccacc	gccggccgga	agaggggtgc	agtctcccat	1020
tctttctcta	gatatagcaa	taagaatgtc	acaaaagaac	aagaagcggg	cttctgcctt	1080
ttccattcaa	ggtttttggc	cattatgagt	attgccgttg	tcctcttctt	ctggggacta	1140
tcggcatcat	tgagtttggt	ggcagaggaa	taggcattcc	gtgagagaag	acctctcctt	1200
caatctgctc	ttatcctccg	acatgatgaa	acgcaggcac	aagagctaca	gcgacagata	1260
gcggccacac	ccttgtcaaa	gatgtcagct	atatctctgc	cgatcaagcc	ctcgaagaga	1320
tgaaaaagaa	ttgggcgaag	acgatccggc	caagatgctc	ggctataatc	cctgcaagcg	1380
gaaatgtgcg	ttcacctcaa	agcccaatac	acccatccgg	aagtctgaaa	accatagact	1440
ctgccatccg	cacatggaat	ggagtggaca	tctggaatac	agggcggata	tgttcgacat	1500
agtacaccgc	aatacacgcg	tatcgggtct	gttctgctcg	ctctatcagc	cttgctcctt	1560
ctgatcaact	acatacagat	caac				1584

(2) INFORMATION FOR SEQ ID NO:77

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 627 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...627

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:77

tggattccgg	cagattttctc	cgtccaactt	tagaagaatg	agttggatat	ttggggtaag	60
aggtgtagat	ggattgttgg	aaacataatt	tgtagggaat	taattgctcc	ttgtataacc	120
aaatcaatgg	gatcattcgc	atttccattt	tgccaatgaa	gtctgcagta	gttacatttt	180
taacaggata	ctgcttcgtc	gcttaaccgc	tcagacatca	atatgatatg	cttatccaca	240
gcagtgaagt	ggccataatg	tttctcgcca	ttttaagccc	cccctgggta	tgtgtcccca	300
aataggagtc	aaagcccggg	ttttttgaca	gagaaaagca	gtgctttggg	aaaatcagat	360
aagcgatgag	gctcatggtc	ataactcaca	aggcgatncg	cacccttctt	gtagccgtcc	420
ccttaggcaa	catttttttc	aaaaacgctg	tcccgatgca	atggcagact	ttaatctggc	480
aatgttttgc	ctcccattga	cgaagactgg	tcgataacca	tcaccacatc	gacaggtacg	540
ttaccgcttt	agtagtgatt	tttagcgtca	catcccaagc	attgggattt	caggatccat	600
tggattggca	accggtaccg	catactt				627

(2) INFORMATION FOR SEQ ID NO:78

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 611 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(2) INFORMATION FOR SEQ ID NO:80

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1764 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1764

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:80

cagcatcata	ccgggacagt	atgacatcga	aagcctcatc	gcataccttcg	tataaaggct	60
gaccaattca	tcatacagtc	gcttgtggaa	actgctcaag	gagaatcctc	tttattttatt	120
gttcagaagg	tagatatg	tcgatatcga	ttctttttaa	tgagacttat	tgcaaagaaa	180
aacatttttt	ttcgacaaac	aaacagaagc	aactgcttat	caacccgact	aatgcagcgg	240
aagagcagcg	atcgttcttt	tccaagcggg	gtgtcatcgt	ggggctatcg	cataatgttc	300
ggggccgaag	aactgtatcg	ggccggggta	aacgtactcg	gtgtcaacgc	ccattcgcga	360
cgcatctcgc	gcaatgctcg	gtacgggttc	cctccatata	caccaatgct	tttcgaatca	420
cgggcttcat	ttttccgctc	cacgctccat	attcatcatc	atcgatcatg	gcacgccgcc	480
ggcttcccat	cggatacagg	atctgccgta	ttcttgatcg	cagccatgta	gcccgtcttc	540
ccgctgcgat	caggatagaa	gctgcacgtc	cgagacagta	gcagtagtgg	catcgaagt	600
ggagggcatg	gcacagcgtc	cttcgtagcc	gaagaagggg	taagcgtagt	gaaccgcccc	660
tgaaatcgtc	cttcttccgc	ccattcgcga	gcttctgagc	cgatcatgtc	gccaagagct	720
tctcggtagc	aatgacgaaa	cctgcacatt	gccgtgaggg	tcgcgatcgg	caatcaactg	780
tcgaccacat	ccaccggcaa	gctgtcgtac	aggcgcgaat	tctcgggact	gagttgttct	840
tgatatactg	tctctgtgcc	gaacgtttga	tgagcttgaa	ttggcatcat	tttgggagag	900
aaactcgttc	agctccttga	tcaacctctt	ctggccggca	ggaattcgat	caacccctcc	960
ggaatcagta	ccgtcccgaa	ttcattcctg	cctccgaccg	acgcaccacg	gtctcggcga	1020
tataggtcac	acatcgacca	gatagtaatt	gttgccctcc	acctcttcgg	atagcataag	1080
atattggggg	gggtctggag	ggcgcaactc	agtgtaatat	gagatgcgaa	cgccccatca	1140
gcttgatgaa	gtgccagtac	ttccggggccg	aattgcatcg	cgctggatat	taccgatcag	1200
ttcgctatag	actttggcgg	ccgtgcgaag	ccgaaggagg	tttctatctg	tttgtttttc	1260
aagtgcgcgt	cgatgtcttc	ggacagccga	tcacttgat	tcgggcacgc	atcgaggcat	1320
agtctcggcc	aggatgcagg	cgttgggtgt	ggagtcgtcg	ccaccgatga	tgccaatgcc	1380
ttgatgtcca	actctcgcaa	tatctccagt	ccggcttcga	atgttcgggc	ttgtccagct	1440
tggtacgtcc	ggatccgata	atgtcgaagc	ccccgtattg	cggtattcat	ctattacctc	1500
agcagtcagt	tcgcgatact	atgctcgatc	aggccatccg	gtcccataag	aaatccgaag	1560
agccggcttc	gggggttagc	agcttcatct	catcgaacag	accggctatc	acattgttcc	1620
accgggagcc	tgtccgcccc	aaaggataac	ccccacattc	gtaggagata	ctccgtccgc	1680
tctcctccag	gtgcgaaaga	aataagcggc	aagcctatgt	gcggggaaaa	atagcagcaa	1740
tctcttcttt	gtccgaaacc	gggg				1764

(2) INFORMATION FOR SEQ ID NO:81

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 670 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...670

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:81

cgctggaaac	ctgaaggagg	tgtgcccag	gtactggaga	ttccggccgg	gagcaagaca	60
aagcgaaaga	aatgcatcag	gctttgggtg	aggctgcgcc	gaaaacgatg	agagcctgat	120
ggaaaaattc	ttcgatcagg	gaagtcttct	gaagaggaga	tgcgcgatgg	tatccgtgcc	180
ggtctgatct	cgcaggtatg	taccccggtg	tctgtgtcag	tgcggagaag	gatatgtgtg	240
tgcggtaca	ctggagttcc	tcggcaacgt	ggttcccggc	gtgaacaaac	tgccgcacct	300
gtggctgtga	gcggagagga	agtgaacccc	gatgcttcgg	ctccccttgc	atccatttct	360
tcaagactac	gatagaaccg	catattgggtg	aatatcatat	ttcaaagtaa	tgagcgggtac	420
cctcaccgag	ggagtagatc	tctcaatgct	gaccgaggct	ccaaggagcg	catcagtcag	480
atattcgtgc	ggccggacag	caacgcatca	aggtggacca	gatgtgtgcc	cggcgatatg	540
gagctactgt	gaagctcaaa	gaggtacgcc	gtggcaatac	gctgaacgaa	aaggcgtgga	600
gcatcgtttc	gacttgggtca	aattcccag	cccaagtccg	tcgtgccatc	agggctgcc	660
acgaatccga						670

(2) INFORMATION FOR SEQ ID NO:82

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 343 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...343

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:82

tgatcgccat	attgtcccaa	gagcataagg	atatggagga	gaaagtccga	agaaacttca	60
ggaaatgata	gcggatacgg	atcatcgctc	ggatatgcgg	atcggcagac	cgaccgaaag	120
atcaggatcg	gcagaaagaa	tgccggctgc	cgaagtcggg	tgatcatagcc	gactggctgg	180
tacgggatat	gatgcgtttc	agcccgtggc	gaaagacacg	agtggcaagc	ctctgaacaa	240
tagcaggcca	acagcaccga	ataccggatg	ctacagcgcg	ccctcgccct	tttcgcggag	300
agaaagagcg	tctgacaccg	tatttcggcc	agatgaatct	gac		343

(2) INFORMATION FOR SEQ ID NO:83

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 656 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...656

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:83

ccgaaccaat	ggcttggcta	tatgccggag	gcgatcgtag	aatcaacaag	tggtggggga	60
ataccggcaa	tgctgagaat	aagccgatca	acttcttcgc	ctgacaactc	gcggtggact	120
tgtatatgac	gtgccgatta	ttacgcagaa	ggtgctattc	cgggagggca	gtacttacct	180
tttgccaaag	gcttatggcg	gataagccga	ggtatacggt	ttataggaat	cgtcattaca	240
tatatgtatc	aagacgctgc	cggataagat	agaagtgaag	tattctattt	gcgatggaat	300
tttagtacct	aacgatactt	atatgggcta	tggtacaac	gtggagtcga	tgagcaaggc	360
aatgtcacca	ttactaatac	gatgcagaat	tggtacccca	tggtgtgaga	ctcgttgcta	420
aaaatggtgc	ttactttggc	tccagcctac	cgatacttcg	ggtgagtttg	ctgagtttagc	480
caacgggtgct	cgcaaacatt	caaagttaa	aaagatgctg	tggcggtcgg	ttctgcttac	540
tggaggttta	ttacaacccg	gatccgaatg	caacagggtc	gttccggaaa	agttttatca	600
agaaatagac	agacttatga	aaaagtattg	gtatatgctc	gttgctaacg	agtgtt	656

(2) INFORMATION FOR SEQ ID NO:84

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1128 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1128

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:84

aagggtttcaa	tttcgcacaa	tgagagatcg	tttttttggtg	caaagggtgtg	tttctccttc	60
tcgagatatg	tcattcttaa	ttccattatt	tcgtcttaga	accgaacaaa	ggtagaattt	120

ttaaggagaa	ggataaatga	aaaaacctta	aaaacatgaa	agtaggagat	aagtgtgaga	180
atgagtgcgc	ctgatcttgt	gatcggcgca	ctcttttcgt	tgtttggtcc	tatggacagt	240
ctattgtatc	cggatcgtat	tcgggttaga	gccctcctcc	tcctgatccc	tgatgccacc	300
accggtttga	gaattgctat	cgcctgcatt	ggcagaagca	cctccggaag	cggcttgccg	360
tactcggcga	acttcagatc	cggagcgatc	aggtacaatc	ccgttcgcga	gtgaccgtat	420
tgtaacgaca	ctctgcccctg	aattgacccg	aacggagttg	aactgggagg	ctttcacatc	480
ctctttcttc	ccactcccga	tcctttggcc	tgtgcaatga	gacggaaaaca	accgatgcct	540
cgagcttgat	cttcttgccc	gaagccaatt	ccctgcgcac	gacgatgcca	aatcgcgcag	600
gataaccgaat	acatcgcccg	ggctggctcc	cgaagtgctg	agatttggtc	tgcatgtgc	660
agggtggagg	caatgctgcc	gttgatactg	tctgcggata	ccacagcttc	ttgcctgttg	720
ccttgtagggc	aatacggatt	gtcttctttt	gaagaataac	ataataattg	aaagaattaa	780
tgattaataa	tgcggacttt	ttctgtccat	taatttaata	atagcaatcg	agaatcgatt	840
cggcgccatc	ctcttctctc	tgtttgcaat	gcaaagataa	ggtaaagaaa	ctgatcgtcc	900
aaatgttttg	cagaaaaaag	ttttcaacaa	caagggcgct	ttacgcttta	tatataaaac	960
ggcttcgcta	tttcttatac	aaggcttcga	agcactcttc	cggctttcgt	aaggggagct	1020
gaaatccggt	attcggcggt	gtccgaatga	tttatatata	aagtattttc	gattaataat	1080
aaatcgattt	ttatttatat	attaatcggt	ttcatttttg	gggatccc		1128

(2) INFORMATION FOR SEQ ID NO:85

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1094 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1094

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:85

cgggcctttg	ctgttttctt	cgtgagtag	ggcacatgcc	gatatgccgt	ttggtcttcc	60
gtcatccata	ttctttgggg	tgtcttgcc	ctggtgggtg	tcctctattg	gctgcttgga	120
tcattcgttt	cacgagccct	cggacactgc	ccggcttctg	cgcattcccc	aaatggcttt	180
ttggctatgg	gttaccgcgt	ggctatcatc	atggccaaaa	cgacaggcta	tgtgatggca	240
caaggctccga	cagcatccgt	ttggagctgc	tggtggcggt	gggtgggtctg	cttacttggt	300
gccttgcaat	tcgggttggg	cangtggcta	agcaaacgat	attgaaagag	agcattacgg	360
ccggtcaggc	tttgggacag	aaaaacacgt	cgttgccatt	tggtatgtcg	ttacctattt	420
gaatccgata	gcttctatcg	ccctgcaagc	tatgtggtat	ggcaaaaattc	gctcaattcc	480
atccaaatct	gtctatcacg	aaacgaaaaga	ataaaaaccga	cagacaatga	aactaacagc	540
cgatggttta	cttccatcag	tgaggatgag	aagggcaaca	tagtattctc	aatggacgct	600
tgagagcttga	cgaattccga	ctgagtggca	agctgaaatc	cgaatcgaaa	tacgctggcc	660
ctacgaagcc	gacgaacaag	gtctgctaca	gaatcggcag	gcaaacggat	cgaagagatc	720
gagctgctca	tccttaggct	atggaaaagg	acaagtgggc	catcatgaca	ggcaactata	780
ccggggcgga	acaaagtatt	gggtctatta	tgcccgtact	gaacgagtat	tcgcgaacgg	840
ctcaatgagg	tggttgcccc	ttacgaaaaca	ttaccgctgg	agtagaatgc	gaagtcgata	900
ccgactggga	agagtacctc	gatatgctct	catgaaagac	gaaaattcga	tatagccatt	960
atgccatctc	tctgtggcga	gggagctatt	ttttattggt	caagcttcng	aaccggatcg	1020
acgataggat	gattgcgcgg	atggtaggtc	tcgatttcat	gccggagtg	ttctctgtga	1080
tatgggtata	gatac					1094

(2) INFORMATION FOR SEQ ID NO:86

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 652 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...652

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:86

```
gctcaacaag agaagcaggt gtttcatttt ctgaaccttc cggctactga caggctttgg      60
ctgccggagg caaagctatc accatcgtag acgacaatcc ggactggcct ttgagaatcc      120
ggctctgctc ggatatgaat ccggtggcgc gcctttcttt cctattttata ttatatgagt      180
ggttcgcata tgggcatgcc tgttatgcct cgccgctcgg agagcgtggc atgtgggggtg      240
ttggctgcgt ttcctgaact acgggtctat gcaaggatac gatcagaatg cgatgccacc      300
ggctctttta gtgcttcgga tatagctgta caaggatttt acaccatgaa ctgagcaacc      360
acttccgcgg tggagtcagc ctaaaagcat tgattcttct atcgagacgt atagttcctt      420
tggccttggt gtggatgtcg gatcagttat tacgacgatg acaaaggata ttccgtttcc      480
gctctgttca gaacgtaggg gcgcaactga aaggctataa tgaagaacgg gaaccgctca      540
ttgggatttc cagctcggct ttcccgagcag ttttatcaat gctccgttcg cttgcacatc      600
acgttgttca atctgaatcc gcactatttc aagcgtctgt accacgcgat ct              652
```

(2) INFORMATION FOR SEQ ID NO:87

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1402 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1402

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:87

```
cgacatttta tatatcgctg atagaacaag aaaactcaaa cctatgaatc agttcctgct      60
tctgaaaaca aaggtcaatc ccgtacagtg gaagacgacc gcagttacttc ggactttatc      120
```

tcaacctcgc	acgagagaat	ttgatagagt	cgaaagtc	gttcgcatta	agttcgggaa	180
gaagaaattg	aatgaaagtc	gctcaagcaa	tctcttcttt	gtgatcacct	gctctccgctc	240
gatcgtggac	caaagtctat	ggccatagca	gacgctatct	gcctttcctc	catttttctga	300
tccggatagt	cagatcgaaa	aagaccatga	tagcaagacc	ggttggatcc	cgattcggcc	360
caaaggctga	tcagagagct	ttattcttta	ctgatttctt	gcgcaatgac	ttctcgcaca	420
atcggcttga	tggcactaca	tcgagcatct	cgaagtcagc	cctgacatca	gctcctttat	480
taccggggaca	actccttggc	atgcggggaga	gcacaatcgc	ggtttgcaga	tttcttcaac	540
ccgacgactt	tgtccttgga	aagaacagga	aggaacaatt	gataagcgag	cggacggaaa	600
agaatgcctg	accgttagtg	gccttgccct	tttcattgcc	tcttcctcga	tagggagcag	660
gcttccggta	tgctgagcag	gattcgggat	tcaaacgaac	cgatgagaat	tgggcacgag	720
ccgtgcacga	gacctctgcg	atctctgcat	ccgtcatcct	cacgacaggc	tcgaaagcag	780
caatcgaaag	aagctctctt	gctcgatatg	ctcaacgaac	tgaaccgttg	ccccgcatcc	840
tttacgatat	gctccccgaa	gaggagcggg	cgcaagttcc	tcctgcgctg	gacgaaaata	900
gcatgaacaa	cctctcggaa	aacagcctga	agaagagagt	cgattgcttt	gggacggctc	960
ttcggattgg	gcagaggcac	gaccaagagg	atccgccatc	aggatcgctt	cccctatctg	1020
atgcttcgtt	tatcgaggag	atggatctgc	tcaagggtat	acgctttcgt	gtcgatttgg	1080
tgaaatcgag	ctggatttctt	actccaaaaa	ggtaggccgg	aatggtggta	cgatcgcacg	1140
ataacggatc	atgccttggc	attcggcaag	ctgtcaactt	ccagaatgaa	gaagaggtaa	1200
gtaggatgat	cagtggagag	gcgtctatcc	cgtagccttc	tctctctttg	ctccccgcta	1260
tgccatatac	gacataagat	aggctattgc	catacatccg	accctgtata	tcctaagagt	1320
aagcagggag	taagagggcc	ttgagcaatc	ctcagtcgat	gggattatca	gttgacaaac	1380
cttcgtaagc	ttctcttgat	gg				1402

(2) INFORMATION FOR SEQ ID NO:88

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1336 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1336

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:88

aacaaggatg	ctccatctgt	cattttttcca	ttcgtttctga	ccgaataggt	gtagttgttg	60
atattctgat	ccaattcggg	atagagggga	atggatttcc	attggcatcc	tcgccgggtct	120
gccatgaaag	gatgggcatc	acgtcatgag	ttcatcacgc	gtatattcgg	ctccgaacaa	180
aagttagcga	ggcatgggag	gaatttgtcc	aagtcgtagc	tgtactggat	accgcccata	240
tatgtttgcc	tttggtcacg	ccataattat	tgccgtattg	atcttgaggg	ataggtagcc	300
ttccgtacca	ccgggggtggc	cattgacgtc	aatctctccg	atactccgta	atagctcttg	360
cgatttacga	tctgtccgga	agtataagcc	tgaagtgggtg	tttatagttg	gaagagaaga	420
gatcgtatct	caagtttccg	caaatacgct	atgggtcagtt	tgttcagcta	caccactac	480
gtgaggaggc	aatcgatacg	atcgccacca	cggcggaatt	cactgatcgt	gtgaaactcc	540
ccgtcaattt	gctgtagtcg	ctcaagcgca	aataagaatg	cgctcccacg	agcgggcatc	600
tattttaccc	aattcgggaat	aaccgtcatt	gttagcaccc	aatggttgcg	gtaacgagcc	660
tgcccgaata	ccatggcacc	ggcacgttgt	catcgctgac	gatggaggca	ttgaagtctg	720
tggtgttatc	cagctgtcga	aaccggtaaa	gctcagagat	tcattgaatg	tgaagaatt	780
gtgaaagggt	ccttggtgat	gatattcacc	actccggcaa	tagcagaaga	acctacaagg	840
ccgatcctcc	accacgtact	acctccacac	gttcgatcat	atggcaggga	tctgctccag	900

accgtaaaaca	ccggcaaggg	cactcatgat	ggacggctgt	cgatgaggat	ctgtgcataa	960
cgaccatcca	gtccattgat	cgaacttgat	tgaaaccaca	gttctgacag	ttgttctcta	1020
cacgaactcc	ggctggaatg	acaagccttg	agccagggtta	gaagcattga	cttgcgagag	1080
actttttcgt	tcaatacatt	taccagagta	ggagcaagac	ggcgaaggtc	agttcgcggt	1140
tggccgaaat	cacgacttcg	tccagattga	tggcatctct	tctgcttcga	aattcacctc	1200
gatagtcttg	tccttttcta	cgcggctacg	cgctcctggc	tcttatagcc	catgccacgc	1260
ataatcaaag	tgattcaccc	cggacgcaag	ttacgaagat	agtagtgccc	ggttgcatct	1320
gtaatgtacc	aaaggt					1336

(2) INFORMATION FOR SEQ ID NO:89

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 501 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...501

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:89

ttatgcctca	aaaattttat	attcaaaaagt	ttttctccca	tttcaataag	cttttgacat	60
tttcttctgt	tgcaggctgt	attttatgca	ctccaaattt	ttagcgatat	caggagatag	120
ttttagcaat	tctcttcctg	tctgattatt	ccaatgatta	caagcttggg	atatttgga	180
ttggcaacat	tgtctgtgca	agctttgcaa	tattagacaa	acgcaaaactt	caaattgggtc	240
aacaatctat	ggaaatcatc	tataacaaaa	tttcctccct	cttcaaaaatt	actataatga	300
gttgatttat	tntcgtcgtt	tcattctatat	ttcttgctga	caatattcaa	aatgtatttc	360
ttcttttatg	tcagataata	tcttcaaaaat	agagaagtct	tccctgttcc	agtttgccc	420
tctatgataa	ctggcttctt	ttacttgta	catcaattag	aattttcgta	gtagtttagn	480
ggttcgacat	tgtaagtgc	g				501

(2) INFORMATION FOR SEQ ID NO:90

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1527 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:90

```
tccccgggaa tttacaacta cggctattca ccagggaag cctgacagta ttttaagaag      60
gcacgttttg gaggagctat cgacctcaaa taccatatac acctacgata ggaatacgcg      120
gggcctatcg gatcatctac gatactgccc tattgtacct gtgcggaaag attacaacac      180
cgttgatgtt ggtatcatat ttcgttttaa gcgagtagta tatgacagat atgatgattc      240
aaacgcacag ggagagatgg agatgcgccct gcaagaacaa gaagccgat ttgtaagaag      300
cgcaccggag aagaaccagg catagctcca ggatcattac ctagtggatg tgcctaagcg      360
taagttcacg ggctttctta gtgatgactt agatcagact agcgggaggt cattgaaatc      420
tatcgcaaac gttggctcat aagcgactct tcaagcagat taagcagaac tttcccctga      480
aatacttctt gagatcgttg cacaatataa ccctctaccc cttcatattg atcaagacaa      540
tacaagcatt gatttgacga agaaaggagc gcttcatgca gtatctgcaa cctcaagtat      600
acacctctga tggaaagcttg gggaaatttc tgtttaccgg tgcccatata cttgagattt      660
gacctttcct gaaaacacaa ggaatcgccc tgcagcaaaa gaattcaatg aaaatcccgt      720
gcaacagtct caaaaagaga agctgcctct ttcggaactg ttccgggagg cagcctcttg      780
tggatcattt caatttcaat agcaaattgt tctctggttt ttcagaagat cttagctttc      840
cgtccacaaa agtcgtgcaa atcgaataaa ccgccaaaagg aaaaatatgt tgttcagcaa      900
gttcacccgt atccacatgt cgaaagcggg acagaaaggg taagaggact cttccgttat      960
agcctgaaac taacccctac atgacaaagg gagtagccca gccggctgat acttctgaga     1020
acaatgcaaa tcgcgctgaa caaagaagcg cgctccaaga tgaataccgt agacaaagcg     1080
gtatcattgc cgaaatagcc tcccagagtc tgacctaaat agccatcaca gcagaagcca     1140
gctgatagtg aaagtctaatt ttagtggcta aaatgaggca gagaaattgt gttccgtgcc     1200
gtaatagcca aggcgacctc ctacataatg gcgcctttgc ctctggcaag accgctgatg     1260
ataccggttt cgagtctacg gtgggcataa atgcagccga tccgtgatga gaaccgatac     1320
ccaaccgacg ttgagcgaaa cgtcaccctt gcggatagca ctctgagcat tcttgagaat     1380
atgccggcca agatgatagc cagactaaaa attacttttt tatgttgttt tcgttttttg     1440
acgtttgatt gtctcttcta attttttgat tgtttatcct gattctgatt gtagtcagca     1500
aggctttcag ttcttcattt ctatcgt                                     1527
```

(2) INFORMATION FOR SEQ ID NO:91

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 386 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...386

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:91

```
aaaagagatc ggaagacagc gaaaagagat tgggaaacga tttatatatc aacgaattcg      60
atztatatat ttatcatttt cgatttatat ataaatcggt tcatttaata tatagattgt      120
aaagtgtttt atatataaaa cgagaggaga aaaggcctct tcgaccgatg aaataaaaag      180
aggcaccac ccaagtgcgc accgaactcg ggcgagtgcc ttagtatctg acagaaatgt      240
cgggacttat tcgcgcttgt acatcacaaa ttcggcacaa gcgtcctcgc tcgacgatta      300
cttcatgtta gtcttccag cgtacattgc gcatgtcgcc gctttggcca attcctgatg      360
```

(2) INFORMATION FOR SEQ ID NO:92

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 588 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:92

gctgtcgatg agtttcttga gtttgagctc gatttgatcg cagagggcag caattcggta	60
cgatcggcga actccacatc ttcttcgggg aagtccaatc caactccatc agccccgtaa	120
ggcgaagcaa ttcttcacgc agagcatcag ttcttcgcta tatccaccac gcagttgctt	180
catcgccatc tgatgcgtgc cttgctctcg ctggcgatga tatccgccac cggctcggca	240
ctactaggtc catacgcca ttgaggtagg cacggcgagt aaattcgccc cgnttgccag	300
accgaacagg cctgatttga tcaatgcctt cgagaatacc gtcaccgtat attatatgga	360
gccatggcag gcaatctcga ctggatgctc ggagtgaagg agtgcnggcc atggaaacac	420
gttaggataa cttcgtcaat ggttcgtccg gtcocatgaa tttcgccata gaaggcggtg	480
cgaggcttgg ttccgctgaa gtcaatcggc ttggccacga tatagaaaaa gtgggctaag	540
agcggaaaagc attccggacc ggacacacga attcaccgga ataccggc	588

(2) INFORMATION FOR SEQ ID NO:93

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 473 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...473

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:93

gtacaacggc tcgttcgaag ccaattatct ggtatcgaag tccggcgaca atacgtgccc	60
---	----

ggagactaca	gcaagaccac	cagtctgaat	atccgatgac	acacagtcag	gatccgaagg	120
ccaatccttt	gcaaacggtg	tcggccatgt	caattttgcc	accggnagct	atttccagaa	180
ttcgtctgaat	accaccatga	tgtcaatgcc	cgtactgcta	cgacacgaag	ttcggccgtg	240
agctatcgcg	caagtttccg	ggtactcctt	tttcgattac	gggtagcatg	gatacagcca	300
gaacatgcgc	gatacgacgg	tgagccttac	cttgccgaat	cttcgattaa	tatgtccacg	360
cgttatcctt	tcaagcggaa	gaccggtgta	ggccggagcg	atggtagcag	aagttgagtg	420
tgggctattc	cggtcagctt	ccaatagtat	cttgacaaan	gagaaagatt	tgc	473

(2) INFORMATION FOR SEQ ID NO:94

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 516 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...516

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:94

cgggctgtaa	ctacaatctt	tctcattggt	ctttacttat	tgtttttaag	ttttgagtca	60
cggtatcacc	ataatagcaa	tcagtgtctga	gttttggcacc	gtccttataa	caatcggatt	120
cacttttttg	ttgtgagttt	aatcacaaatc	tgctcgagaag	tttatcgga	tgcttcgagt	180
atgcggcgag	ccatagccccg	tcgacatcca	atgcttcgcc	atagctgacc	cctcgttcga	240
tgaatgacgc	tctatttcct	ttatcacatc	cgatcctatg	tgcatttcct	ccagcgggtc	300
ttcagtcgga	gttcgcggaa	gaattcctcc	gtccgagcaa	tagtgcattc	atacgtcct	360
cctctgttcc	ctcttttata	tcccagattc	gtcggcatat	tggagcatct	tctcccgtt	420
gtgatcgtgt	cccaagggtgc	gagagtaccc	ggtagcacta	tggccagcgt	gtgtccgtgt	480
gtgagtcceg	cagtgcgcta	tctcatgacc	gatcat			516

(2) INFORMATION FOR SEQ ID NO:95

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 889 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...889

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:95

cggcaactcc	atccttatca	aggtaaacca	gattggtacg	ctcacagagc	cctgaatgcc	60
atcgagatgg	cacaccgtca	cggctttacc	agcgttactc	gcaccgctcc	ggagagacag	120
aagacaccac	tatcgagac	attgctgagc	aaccaactcg	ggacagatca	agacgggac	180
gctcagtcgt	accgacgtat	ggctaagtac	aaccaactgc	tccgcacga	agaggagtta	240
ggccctgcgc	tgtatacggc	tacaagaaag	tgtaagcgac	aaagtacaca	caggtacatc	300
tttctgccga	atacggaaaa	ggggaaaaga	tagtaccact	gccaaaaaaa	gaatgcccc	360
aaagttggaa	acacaacttt	gggggcattt	atttgccgac	ttatttagaa	gcgaacaccg	420
agaccacaaa	agaagtcatg	atacgcaaag	aagtcttata	cggagcatcc	ttcaacatat	480
taagcaatcc	tgctcatatc	caatttgtac	gtaataacgg	tcgtagctca	aggcagcagc	540
aagcccaagc	ccaagtcgaa	acggttatat	ccgttatcac	caaaggcact	acagaagccg	600
taacgcctgc	aacttttagtc	ttaatcggtc	cggcgaccca	tatgcgaaat	agggacctgc	660
ttccaatgaa	atagccatgt	tgtcagaaag	ctaaatctca	taccggcatt	caccgggtatt	720
tgagataaat	gcaaggagtt	gtcgtttcac	ttagtgtatc	catcttagca	cctctcatcg	780
tatagccaat	ccgggggcga	gatagaatcc	atcattgcta	agagcgaact	cagagcagca	840
ccaacacgta	agcctacgat	catcttattg	ttcacgctcg	tgttgcgac		889

(2) INFORMATION FOR SEQ ID NO:96

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 640 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...640

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:96

gactgccaag	ggtccgctca	gtaccgtgat	acccataata	tagaatcggc	tcgagcagag	60
gtggtaggag	gtctgcataa	tcgtattgag	catattggca	gacccatgac	atgccctaca	120
tagccgaata	tggcgaagaa	gagaatgtga	agccgagggc	ttcgaagaga	tgacgcctga	180
acgtcagttt	cttgtgtgag	atcttgtctc	catttataat	gatgtatgcg	gtggtttttg	240
gtgggaaaag	acaaggccgg	agcggagcct	cgttcgggtc	tccgctccgg	tcttgccgtg	300
aggattatga	gttggtgtag	acgaccctgc	ctcctttgac	ggttgctcca	cgaggttcat	360
accgaagtga	taggagagga	atttgtacga	tggtattgga	gtacgacgag	gtcgccttc	420
ttgcccggct	cgatgctgcc	gtcgtatcgg	ctcttcctat	ggctgcagcc	ccgttgatcg	480
tgagggctgt	atggcttctt	cgacgggtcat	gcccattgtag	aggggtggcaa	gggcaaacag	540
agggggacgg	aagccgagaa	gcaactgccc	ggattgaggt	cgctccccgt	gcaacggcac	600
agccggcgtc	gatcatctta	cgggcccggag	cgtagtcgca			640

(2) INFORMATION FOR SEQ ID NO:97

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 838 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...838

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:97

acgctcgcta	tgcagatcaa	ccccatgctc	tgcggttctt	cgttcaagac	aagggcgtac	60
agacactgct	cgatgccgta	tgtaagttcc	tgcccagccg	gcagatactc	ccacagtgga	120
aggtacggat	ccttctgact	cgagtaagt	atagagcgca	agacctctcc	caacgagcct	180
ctctgtgctt	tggcggttaag	attgctaccg	acccttacgt	agggcgctctt	tgcttcttcc	240
gcgtaattcg	ggcgaattgc	ctgccggttc	atacgtttac	aatgctcggt	ctgaaagaag	300
gagcgtatct	ctcgtctctt	ccagatgcac	tctaacaagc	agaccccaaa	gaggtgatcg	360
gttgccggtga	catcggtgcc	ggtgtaggct	tcaggatatt	cgtacggggc	atacgctttg	420
cgatgagagt	catcctatcg	tctcgaatct	atggacttcc	ccgatccggg	gatcgggtatt	480
gccgtggagc	gaagacgcag	aaggacctcg	atcgtctggg	tgtaggtttg	gccaaagctgc	540
tgaagaagac	cccacgttcc	gcgttcagac	gaacgaagat	tccggccaac	ggttatcagc	600
ggtatgggtg	agcttcacct	cgatattatc	atagacctct	gcgtcgtgag	tttaagggtg	660
aatgcaacca	gggacgtcct	caggttctta	caaggaggct	atcaacgatc	ctgtggagct	720
tcgcgaagtg	tacaaaagca	gaccgggtgg	cgcggttaagt	ttgccgacat	tatctgtcgt	780
gtgggcctgc	cgatgccgac	ttcgaaaggc	gaattgcagt	tcgtggattg	agggaagg	838

(2) INFORMATION FOR SEQ ID NO:98

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1088 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1088

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:98

gactctctcg	ttttggacgt	cgctctcgaa	agaataccgc	cgcggaacatt	tcccgggcgc	60
agagagtttc	cccctgtttt	cggatgcgga	acgagccggg	taggtacgct	ctatgtcaga	120
catagtccgc	aggcgggcgt	agagcgagat	tggagtctgt	tgggcccgcgt	atggccgaga	180
tggtgcgaga	agctcgtccc	ttgctgccgg	cagagacatc	atcctctact	gctggagagg	240
aggtagcgaa	gcgagagtgt	cgcttggtctg	ctatccgtag	taggacttcg	catcgtcgtc	300

tccgtggcgg	atacaaagca	taccgccggc	atttccccga	tatctgaagc	tttaccggtg	360
gcgtttcatc	gtcttaggcg	gttatacggg	ataggaaaaa	cgcccatcct	gaacgaactc	420
acccaaatgg	gggaacaggt	gtcgatctgg	aaggattggc	ccaccacaaa	gggtctgcct	480
tcggtgcctt	gggcaagagc	agcagccgac	caccgaacat	ttcatgaatc	tcttgacgt	540
gctctctccg	cttgtgatcc	gaatcgctcc	atatgggtgg	aaagcgaggc	aagactatcg	600
ggcgcgtatt	tcttcgggac	gatttctaca	aagtcacgt	caagtcctt	tgatcgagct	660
gtctgtcccc	cgtcccgtac	gcacgcgccat	attgccaaag	agtacggcgt	gtacgatgca	720
gaggcactgg	caaacctttc	gagcatatcg	ctcgccggat	gggaggagcc	gctacgacac	780
aagcataact	gccctcaagg	aaggacgtct	ggaggaggcc	gtatccttgg	ctccgattac	840
tatgacaagg	cctatgcaca	ctcgctggct	gaattcaggg	aagctcctct	gctcgactgg	900
cagtagaaac	ggatacacct	cacgaaacag	catcaaacta	ctggaactat	ctcatataaa	960
agggttacaa	tcatgaaagt	gtggatactc	gggggaaact	ctgccccctc	cctcttattt	1020
tgctcaagaa	gccgttgacg	gcactcccgt	cggagaagaa	atctccgtaa	tgactgacat	1080
gaaacggc						1088

(2) INFORMATION FOR SEQ ID NO:99

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 958 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...958

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:99

gccaaataatt	ataaaattca	aacagcctaa	acattcttaa	tgcgatgaca	ctagtaacaa	60
gcaataacaag	agctnnngaa	aaaattacag	cgtaatcaaa	tacatctcat	tctgaaaaaa	120
agagaataat	acggctgacc	aaaataagaa	aggctcaagt	ggtaatacgg	agaaaaccta	180
tttgacgaa	ttaagcgtag	attgatagat	aaaacagcaa	caacaaaaca	agaccaataa	240
accagctca	gcaagagcgt	tcacaaactg	attgtgtgag	aaaactcgca	tgccgtcttc	300
tgaaaattac	gctcaacaac	ttgagtatac	ccctgtccca	acaaaattca	taaatattac	360
cctcactcca	tccttctatc	ccattcaccc	aaaagaagta	cgtccagatc	cttttaaatc	420
cattccttct	gcagaagcat	tgtatgcaca	ttgcgccag	ttatccttgc	ctgaaactgc	480
tcgttggtat	atagaaataa	acaagagcaa	caccaactaa	gcctatcaaa	aatgaaaatt	540
aaccaagtga	tgaatagtaa	ttttacgagg	aagcattaga	ataaccaggc	aacaagaagc	600
atcaaccagc	ctgtacggac	ataggcctga	aaaacagaat	taatcctact	acaatcagag	660
aagcattgaa	acccttctga	aatgactcct	aaattttattc	agtctaaatc	cgtttgttag	720
aacgaggatt	gatgcgcgaa	gtangangaa	tccgcgatga	ggagctccaa	aaattccaga	780
ataaaaaactg	ccccctcaat	tccaaaagca	tcagcagata	aaaagtcttc	cacggagata	840
caatccccac	aagtactaaa	agtgatgcaa	gaagtacaaa	ttggctaagg	tataaaggaa	900
gaattcgagc	cgatcaactc	gattagagaa	ttaaccaacc	aaaaacgaaa	aaagagag	958

(2) INFORMATION FOR SEQ ID NO:100

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 885 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...885

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:100

ggtccgctga	cattcggcta	ttctaccacc	tatatatatg	atthttgcacg	gatagtaagc	60
gtgctctgat	cggtagcctc	tccacggact	ggacgcgcgt	cctttccgct	ttgccactat	120
catggagtag	aatatggaga	cgggcaagcg	gatacgttta	tcactcgcga	tcctttccatc	180
gacgcaatcc	agtataaccc	gacggcaaac	atctgatcgt	aatgggttcg	gcagatgctt	240
tcggcatata	ggactgaacc	tgaaatcggg	agtcactccc	aattcttacg	acaacaattc	300
ttcctgttcg	atctctccac	acggaaaagca	acagccttga	ccagaatttc	aaccccagtg	360
tatcggcagg	gagattcgac	agaaaaaaca	acactattac	ttcagggctg	aaaacggatc	420
gcgcaagcag	ctctatcggg	tggatctgaa	aacccttgag	atcagtcaga	ttcagaccgg	480
agagggatgg	agtacaatgg	ttcgggtgtg	cagctgataa	tgggtgctgt	tggtagacgg	540
ccagagtgcc	aacaatgctg	acagactcta	tcggctcgat	gggaccaagg	aaaactcgta	600
tgggatctgt	ccgccgagaa	gttggccaat	atcgattcac	accggcacgc	gactggaact	660
atcgggctcc	ggatggcaca	gtcgtaaagg	ttggtactac	ctgcctccgc	aattcgatcc	720
ttccaagaaa	tatccatgct	ggtctattac	tatggaggaa	ccagcccgat	caataggaca	780
ctggaggaca	ctactcgctg	gcgatgtatg	ctgctcaggg	ctacgtagtc	tatcgctcaa	840
tcccagcggg	actaccggct	atggacagga	gtatgcagct	cgcac		885

(2) INFORMATION FOR SEQ ID NO:101

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 838 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...838

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:101

gcataatgat	gagcagcaac	gagaggctcg	ctggccgaac	gatagggttcg	atcttcggat	60
gaatctgaaa	gaggacctcg	caaatacctc	tcaaagcgat	tcagggtgatc	cgcaacgatg	120
aataataaag	aatagaaaat	caaatacata	gataaatgaa	gaagacaatc	ttccaacaac	180
tattttctgt	tgtttgcccc	ttacagtggc	cttgccctgt	tcggctcagt	ctcctgaaac	240

gagtgttaagg	agtttactct	tgagcaactg	atgcccggag	gaaaagagtt	ttatactttt	300
accccggaata	cgtggtcggt	ttgcaatgga	tgggagacaa	ttagtcctta	tcgaggggtga	360
tgatttagtt	tttaataagg	cgaatggcaa	atggctcaga	cgaccagatt	ttctgctgcc	420
gatctcaatg	cactcatgcc	gagggatgca	aatttcagac	gactgatgct	ttcccttcat	480
tccgcacact	gatgccggac	ggggactggt	cgttctat	acccaaggag	gattagtcga	540
ttcgatatgc	ttgtctgaaa	ggtgacttat	cttttcgata	ccaatgagag	acggcttctt	600
tggatTTTTc	tcctgtggga	gaccgtgttg	cctatgtaga	aaccataacc	tttacattgc	660
tcgtggaggt	aaattgggag	aaggtagtca	cgagctatcg	ctgtgactat	cgatggaact	720
gagactctcg	tatatgccag	gccgtacacc	agcgtgaatt	cggtatcgaa	aaagggtacat	780
tctgtctcca	aaaggagct	gccttgcttt	ctatcgaatg	gatcagagta	tgggaagc	838

(2) INFORMATION FOR SEQ ID NO:102

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1046 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1046

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:102

gcttcggttt	gctcggtctg	tgacagagata	agagagccgg	ttcctgtatg	cagaataggc	60
gcaatccgat	attaaccgac	atttcctgcc	ttttgagaga	aaacttctgc	cacgatcatg	120
ttacgttttc	acaaaagtgg	cgatgaagg	gacaaaatag	catgccgaac	agcattcgaa	180
tgacttttgg	tctaattctg	ccccatcggc	acgggtggc	tgtatttgta	gcctcttaca	240
agcaagattt	acagcccgt	aaaacggatt	cggacgatgc	ccaaaggagt	attcggcgga	300
cccttcatac	tttatactat	aaacccttcc	gactttatac	ttaaaccctc	caccctttat	360
actataaacc	cataccactt	tatactataa	accataccac	tttatactat	aaaccatac	420
cactttatac	tataaagcct	catactttat	agtataaagc	ctgagagctt	tatagtcgga	480
agtattaaag	gatgattgtc	gtgctacact	tgtgcaagaa	aaaggatcag	aacggatagc	540
tactgcaatg	tgccaagcga	aattggaaga	aaggtttggg	cgtgtgatgc	ccatttgtaa	600
cgccctgtct	gctgaggatc	gtaggctttc	agtccggatc	cagccgcaca	aggaaataat	660
cgaagtcgag	acgaagcccc	agaccgaggc	caaagctatt	tccttgtaga	agcgatcgaa	720
acgaaaagaga	ccgtctcctg	attctcatac	tcctttatcg	tccagacatt	gccggcatcg	780
acaaagctgc	tgcgcgaaac	ttccagaaca	gctttgtcct	gtattcgaca	ttcgatccag	840
acgaatatca	cccattctgat	cgaagaagg	cttgtccgga	gtatcttcat	actccccggg	900
ccgaggggtac	ggacactcca	gccgcgaacg	cgttcgatcc	tccggcaaag	taacgtaact	960
aaagggtata	tggcgagcat	gccataagg	aaagccagtc	cgaaacccag	attgcagtcg	1020
caaagtattg	ccttttcgag	agaacg				1046

(2) INFORMATION FOR SEQ ID NO:103

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1026 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1026

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:103

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gggcctcaac aatcgaataa aacggcattt gagaatgata ttttctcttt tcttccgtgc      60
cggagcaaga gttgcataca aggactaaag ataattgcgc atacagagtc catcgggcag      120
attggagccg gaaatcaaga tcgttcaatg cctgcgaagc agatcgagag aattacgggtg      180
ttctatacgg atggcactat caagagtttc gctcaaacia agagtaagcc tctctttttt      240
cgtaatttgc actcgaatac tgcaactcga tttctcgatg aaatacaacc ataactgcgt      300
gtcgcgacca atacgaagct aaacgacagc tatttccttc ttaacttgta ccggagcata      360
atgaagtacg attatctctg ccggaaataa agccggacag tttgttcagg tactgactgg      420
atgtccaagg ggcttttttg ctcggcctat ctctgtttgt gatgtcgatt acgaacggca      480
ggaactattc ttctggttca aaaagtaggc aagggtacac gtgcttttagc ttcattacag      540
catccgattc attggatctt ctatatccgc ttggacaggg gtttacgcta acgatctgcc      600
ggatggagag tatcgtcctc ttctcgtggg tggcgggttag gcaactgctcc tatgctctat      660
ttggcgcggt gtatcagaga gaggggatcg tgccggatgt tctgctcgga gcgcgttcgg      720
cagatctgat cgtttagcagg acagattctc tcgttttgcc aatctgcatt gcaccacaga      780
ggatgttcgt tgggggtgaa gggtttgtc acgagccacc cgacccttcg ggaggcgatt      840
tttctcatat atatgtgtgt ggcccaaaag caatgatgat ggtgtagcat ccctggcacg      900
tcaacgaaat atcccgtgtg aaggctcttc tgagaatacc atggcttgtg gtatcgggca      960
tgtttgtgtt gtgtggaaaa tcnaaagaag gcaatctttg cgtctgtacc ggaagaccgg     1020
cttcaa                                         1026

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(2) INFORMATION FOR SEQ ID NO:104

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 962 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...962

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:104

```

gggcatgag tttgtccgta aaagaggcga agtagtcata cggcacagat agtgtcgaat      60
actgtcctct ttcggacgga tattcacatc ggggtcgact gtttcatgtg agctttgtta      120
gttacgatta tagaggcttg ttcttaggca agtttaatac tgggcgaca aaaaacgctc      180

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caacttcttc	acagcaggtg	ggaccaatgc	cttgagagca	ccttccgagg	taccggtgat	240
ttcggcattt	tttcgtaagg	catctcatcg	tagtaccgaa	ggttgaacac	caacgctggt	300
tatcaggcaa	ttccagtata	gccttttgga	aggtaatctc	ggctcatctc	catcgaaata	360
aacatcccc	gtgaggttgt	cgagcagata	gggttttcgt	ccgtgatcga	tatactcata	420
tcgtcttoga	tctttttctt	ctcaggaaat	tgagtgattc	gtacatggct	atccgataga	480
gccaggtgga	agtttggcct	ccccacgaaa	accgtccaat	gcactccatg	ccttcataag	540
gtatttttga	gcaagtcgtc	cgtatcgtca	tgactgagca	ccattcgggg	atttgccagt	600
agagtttacg	gttgtagcgg	cgtactacct	tttcaaagcc	atacgccgcc	ttgccggatc	660
tctcagctct	tccagcaact	cttcttcgaa	atcaatagct	tatcagccat	aatgatgcgg	720
taaagatagc	aaaagggtgct	ttatctatgt	caataaagtc	gaagattcag	ctctgatcct	780
gtaggagaga	ccgaaacatg	agagagttat	gctcctgtgc	tttccattct	atgccgactc	840
tatcctttcg	gctcatgcgg	caatccaaat	tcaaatacctt	tgagttgcgc	tactcagaca	900
aggatttgca	aatgcctctc	ggctattacc	caaatacgtg	cgaaaaaagt	tttcaacaac	960
ta						962

(2) INFORMATION FOR SEQ ID NO:105

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 599 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...599

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:105

ggcgaagagc	atgttcgggc	gtacgctcca	gtcctgagct	ttgccgtccg	aacgtaatcg	60
aagagatagt	tgtagcaatt	cagaaacgta	tcgggggaaga	tctttcgatc	cggctgatga	120
tttcgccgat	ctccggtttt	tccccatgag	ttctcgttcg	aagcagaggg	cattgtacca	180
gagagcattc	aattcgcgag	atagccctca	cgggggatga	cggctttgcc	attcagtttg	240
gcatcatcca	acttaacggg	aagcctgtgc	ctaagacgta	gagaagccca	ttttacgaat	300
ttgtgccgtc	gggtgctggg	cggacagata	ataagatacc	actcgtgac	gaaggagccg	360
aatctcttgg	ctgcttcag	accgttgccg	cggcatactg	ctggatggcc	caaatagcc	420
aaatcccaac	gtccggttca	tcagcccgtg	tatgggtgctg	tcattctcat	gcagtcgcat	480
gtagcgttcc	tcgccggaat	gacgggtattg	acgatgccgt	tcgaatcgct	tccggtgctc	540
tacacaccag	agtacagccc	ggtaagtgcc	acgaacagat	cgcgagctga	acgtcgaac	599

(2) INFORMATION FOR SEQ ID NO:106

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 655 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...655

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:106

cagtattgcc	caatgggttg	atgagcgtta	ccccctttcaa	tgtcagcggg	cgacagagaa	60
tcgcttcgac	aaagattcgc	gttggtggag	tgcgcctttt	cggccgacaa	tagttactgc	120
atcggtttca	gccatgtgaa	tctgagttag	taggctgtcc	cgaactgagt	ggaatactgc	180
tgatggccac	ttccggacat	tcgatcctga	ttactgctgc	tatggctctt	cgctcagtcg	240
agaattgcgc	gcccgggaga	atacaaggct	gtattggaca	aatacgggat	agatcagccg	300
tgaccgtaac	cgagcggact	gctttgaccg	aatttgcttt	tccgaaggag	aaggccatat	360
cctgctgaac	ctgggacagg	ccctaagcaa	tgatcgggag	cctctgttcg	attcttaaac	420
gactccacag	tcgtcggcag	cggctgatgg	ggacgttctg	ctacaatccg	caagcagttt	480
ttcgtcagta	ttcgtacttc	aggtgagtcg	gcgaccgatc	tctgccggct	attggaagag	540
cagcctccta	tgacagtggg	agcccaatgg	gattcgactg	cagggaaaat	agcagtacga	600
cggctacagc	gtgagatgag	cgtgatgaca	tcgtgtcgat	ctcgtcaact	ggatc	655

(2) INFORMATION FOR SEQ ID NO:107

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 891 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...891

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:107

ggggctgatg	gaatatgttt	ttcccgaact	cttagccctc	aaaggagcaa	aacgcgtgat	60
ggcatcgggc	ataaggacaa	tctcactcat	acttataagt	agtggacaac	ttggctcggc	120
acagcgatag	tcttttgctc	aggtggggagc	attgctacac	gacataggca	aaccacgcac	180
taaaaagttt	gttggcgaca	gtggacattt	cataatcaca	actttgtcgg	agccaagatg	240
ctacctctct	cttcaaacga	ctccgacttc	cgctggatgc	caaactcaaa	tacgacaaaa	300
actcgtagat	ctgcacatgc	gtccggcagc	tctgggtggac	gaagagttac	ggattctgcc	360
gttcgccgtc	tgctcttcga	agccgggtgat	gaatagatga	tctgatgatg	ctatgcgaag	420
ctgacattac	aagcaagaat	ccgacaaggt	gcgcaagtat	atagacaact	atgctttggt	480
acgtcataag	ttaaagaaat	agaggagaaa	gaccacgttc	gcaacttcca	accaccgatt	540
ccggcgaaga	gattatgcag	accttcggtc	taaaaccatc	gcgccacgtg	gcaccatcaa	600
ggaggcgatc	aaagaggcca	tactcgacgg	ggctatccca	atgactacga	agctgcccga	660
gttttcatga	tcgaagcagc	tgcttcctcg	gtcttcaccc	caaaaaccaa	acatcatgcc	720
acagcgtata	gacctcgagt	gcgccccgaa	gaggctactg	acgaacaaat	actgcgcaaa	780
catgagcgag	acagacaaaa	acagatccga	ccgacataca	tactataata	atcgacgtcg	840

cagtattgac gctcgacaac gacagtatac gtcaattggg tcgaagctat a

891

(2) INFORMATION FOR SEQ ID NO:108

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2496 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2496

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:108

accatatatc	gctatgaaat	taatccaagt	tcaaatcat	tcttcggag	gaactgattg	60
cattagagcc	gaccaagttc	cgcgacgaat	cgcgaatgtg	gtcgtacatc	gtcgtacagg	120
agaaatcgaa	catcgcgttt	tcaaggaatt	ctggagtatt	tcgacaaggg	tgataccttc	180
gtcttcaaca	ataccctgtt	tttctgccc	gtctctatgg	taataaagag	aaaaccggtg	240
ctcagtcgaa	gttttctcc	tgcgtgaact	gaatgaacga	ctgaagctgt	gggagtcctc	300
gtggatccgg	cccgc aaaat	acgcataggc	aataagctct	attcggcaat	gatgaagagc	360
tggtggcaga	ggtgatagac	aatactacct	ccgaggcggt	acgctgcgct	tcctgtacga	420
tggctctcat	gacgaattca	agaactgctt	ttccaattgg	gacagactcc	tctgccgaag	480
tacatcgatc	ggacgtgaac	aaagaggatc	cggagaggta	tcaaagcata	tttgccaaat	540
ggaaggcgcc	gtgggtggc	ctgctgccag	tcttcatttc	agccgcgact	gatgaaacga	600
ctggagatca	aggactgcc	tttctcttac	ataacggaca	ccacgctttg	ggagcttatc	660
gcgacatcga	tgtagaagat	ctgacaagca	caaaatggat	agcaggagga	tgtatatcac	720
ggaggagtcg	tgcataacat	caaccgttca	tgggacgaag	aaaagaagat	ctgcgccgta	780
ggaattcgat	tcttcgtgct	ttggaaacag	ctgtgagcac	agacgggtcat	ctcagccggt	840
cgaagggttg	accaatcgct	tcattcttcc	tccatacgag	ttcatctgcc	ttctgctttg	900
gttacgaact	tccatatgcc	gctctctacc	cactgatgat	gacggccgct	ttcggaggac	960
atgaactgat	tatgagtgc	acgacctcgc	tgtaaaagaa	aagtatcggt	tcggtgctta	1020
tggtgatgca	tgctcatcat	cgattgagta	tggccatagt	gtatctttct	ttgggcagaa	1080
cttaggcgat	cgacacagtt	tgttgtctgc	agcattggag	atgctacaac	gaggggtggc	1140
agactgctca	ccctttctcg	gttctatgaa	accgagcggt	gggattcgaa	tcgccccatc	1200
ctttctctaa	tgcgggtggg	gctttcgatc	ggaactcaaa	ccacaggaca	ttctgcacat	1260
cacacaagcc	atcgaaggga	attgggtcgt	acacaaaaaa	gcaatggagg	ggtctatcac	1320
gatgtccgat	agatatagac	attctattgc	attccgtata	cccgaagta	catcacctga	1380
gctggaactg	ccccaccac	aaatgtggca	acgggatttt	ggcgtatgcc	gctatcggac	1440
gtagctcctt	ggctgcatcc	ggaggctccg	ctccgaacct	ctgactaatg	aaagaaatga	1500
atgtaaacga	cttcgagata	tggctccagt	cggttcgtac	gaatcgctta	tggcagccat	1560
caaggcagag	cagattcagt	ttacttcggg	attgaaggac	tgaatatgcg	tgcgcgactg	1620
ccaacaactt	caccacagaa	gatctgtaca	aaatagccga	gatttgagag	ataaaggcgt	1680
aaagagctat	ttaacggtga	ataccgtcat	atacgtgagg	acatagcact	catgcgtctc	1740
gtcatcgatg	cggcacaaaa	ggcaaaatat	ctgccattat	agcttccgac	gtagctgcga	1800
agatgtatgc	caacagatcg	gagtagaagt	gcactgtgtc	actcagctca	atatcagcaa	1860
cgggaggccc	tacgctttta	ttcgcgcttc	gccgatgtgg	tcgtattggc	agagagctga	1920
atatggatca	ggtgcgtaca	atccacgaga	ccatcgtcag	gataatatct	gtgggcctaa	1980
aggccatccc	gtacgtatag	agatgtttgt	cacggcgctc	tgtgtatggc	cgtttcgggc	2040
aagtgctatc	taagcctgac	gaacacaaca	gctccgccaa	cagaggagcc	tgtgcgcaga	2100
tctgcagagg	ggctacaccg	tcaaggacaa	ggatagcggt	ttggaactgg	acattggaac	2160

caatacatca	tgctgccgaa	agatctgaag	actattcatt	tcatacataag	atgatggatg	2220
ccggcgtagc	agtattcaag	atagaaggaa	gggccgtggc	cccgaatacc	gtctatacgg	2280
tctgccgctg	ctataaaagaa	gcgtcgaagc	ctactgcaac	ggcacctatg	atgaagaggc	2340
cataggccgg	tggacgaaca	attggctacg	gtattcaacc	cgaggctttt	gggatggcta	2400
cacctcggac	aacggctcgg	cgaatggaca	catcgttacn	gctcaggagc	acgcgacaga	2460
aaatatatgt	aggcaagggg	atcaaatact	ttcagc			2496

(2) INFORMATION FOR SEQ ID NO:109

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 656 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...656

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:109

cgcaattgat	cgggatggct	attctgattc	ttctcgttct	ctatgccaa	gcaatgactt	60
gctcagggct	tttcgctgac	agaccgctat	gattcggagg	agacttaccc	ccacaacttc	120
gaggagaaag	tgggtttcga	tgagattgtc	gcctttctcat	cggccattgc	catagtccga	180
tgggcagcga	tcgggtatac	agatgcatgc	tcttgcaagg	cataacgaag	tcagccgctt	240
gcttgcgaga	cgggaagaaat	gcanattatc	ctgagagaag	acgacttggt	tcccatctcc	300
gtctggccga	tgtgcgagaa	gcactaaacc	gtatccgacc	tgcggtacct	atctggaaga	360
gcgagagttg	caggatgtgg	ctactgctct	gagacaatcg	aggctctcat	ccgtttcttc	420
catgtggggg	aagaagagga	ggtaaggata	caccgtaccc	ccacctccaa	actcttttgt	480
ccgagggtcat	gcctttccgg	atctggagaa	gcgtatcagc	agcttgttcg	atcggttcgg	540
aaaatgaaag	acaatgcctc	gcccgaactg	atgaatatcc	gtcgcgaatc	tcttccatag	600
agaaaaatat	ctcgcgcact	ctccaaggca	tccttcgttg	gctcagtcog	aaagct	656

(2) INFORMATION FOR SEQ ID NO:110

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1055 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1055

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:110

cgggggattt	tcctcctctt	tttgggcttc	tgccagcaat	gagggattta	ggctatgccc	60
aatcccacac	tgccgtaccc	ggtcacactc	gctgacgagg	ttatcagggt	cgttgcgtgc	120
ggatgcttac	ccgacccggg	atcaaggata	cggcattggg	agttatctgg	tggcggcatc	180
gcttttttcc	ggtaagtcga	tgtatcgaaa	ctgatctctg	ccccattgga	agccacttac	240
ttcggcacag	agtacgccag	cgtccgattc	ggctgcgagg	ttactatcga	tacaggccgg	300
aagcaaatat	atcgatggca	gcatagggcc	ggatgccgtg	ctgaaggcaa	agaccaatgc	360
acgatcgccg	gcgtattcta	tgaagtaact	gagatacgcc	ctacttgaat	ggcaagaacc	420
tctatactgc	accgtccatc	gatctattgc	caaagtgata	gcaaatagata	cggtatgggtg	480
gcagccggtt	atctcacgtt	ccgatccgtt	ggcaataaag	tcgtggactt	ggccaacaac	540
agtaccgctt	ggctctgggt	ttttcgtctt	catcgcggtg	agacgagtta	tcggctccgt	600
ggatagcgaa	ctgcttgtcg	atgaagtaac	ccttacgtga	ctactttacc	cgaataaacg	660
ttatgaaccg	gcgatatttt	cttttcatgc	ttgcttttgg	agcctctgct	tcacctgtgc	720
ggctcaggag	tcgaagcttc	tgtccggccg	tcgcttttgg	agttttccag	cagagtgggt	780
atgctgtggg	agcatccaca	ccggtaaccg	tacccaagc	catggagcac	gtcacgcgtg	840
gtatccgcga	ctgaatccga	tgggtcaact	gagtgtttcg	cgcgtttgct	tgccggcagt	900
ccgtgggctg	tgaacgtggg	tatagccgta	ggaaaaaagg	catggaagct	actacacgag	960
tgaagatat	gaaagtagct	tcgtgtcgga	ctgccttat	gcccggcaac	cctgatgaag	1020
aatatccgga	ctattcaccg	gcgacaacaa	tacgg			1055

(2) INFORMATION FOR SEQ ID NO:111

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 578 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...578

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:111

tcccccatag	aaatctcaaa	caaccgcaaa	gtctttctga	ccaatcaata	ggggttgtaa	60
acatcactga	cgggatggaa	cctccgatta	ttgccggatc	tctgcttcct	atggatcttc	120
cgtccgggtg	tatggtcatg	tctcacacgg	tgggacatca	taggccattg	ctatttggat	180
atctacccaa	ccaattctat	ccgctcagca	cgaaaccgt	tgcaggagac	gatgaggttt	240
ttgtcaacaa	caaggcaggc	aaatagagat	cgatagcaac	agccccatag	tccagtggtc	300
gtatacgatc	ttgaggggaa	aagtgttttt	cgcaaaaagaa	tgacgaaaac	gcttataccc	360
tatccttttag	agcaccatg	ctcggcttta	tgccatcatg	atcgaaacac	aaaattcgat	420
tatcaataaa	aaacttaatg	tacacagcta	tgaacgaat	aattttatta	ctcagtactc	480
tctgcttctt	gtatcacctt	atgtacaagc	gcagaatgaa	ggttcagatg	cttattatca	540
caaatgtttg	aactaatccg	ttccgacttt	cgaacgga			578

(2) INFORMATION FOR SEQ ID NO:112

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1352 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1352
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:112

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actctagagg atccccggaa tgataaagcc gacgggatta cgaggctttc cgctttttct      60
ttttgctcca acagctccgt cagggccgtg tacaactcct gaactgcaca ttacagctta      120
cttcaaggtc ttcgatacgc tttttgattc ttcataaccg gcaatcatcc gacgcatggc      180
aacgaaagtc cgcatgtggc aatgttcact tctattgctg tcggactgcg cagcaccgat      240
gatagatggc tactccctgc tcggtaaaaag ccatacggagc aacggaactg tgttgagggt      300
ttcgggtaac cggtcacaaa ttgtgaccag ttccgtccat tcgtttcggt aagttcgaac      360
ataaaaatctt ccgggaagcg ctgcaaattt ctctgacggc ctgtttgagc acttttgtct      420
gcacaccgta gagttcggcc aatgataatc caatatcact ctgttgccac gaatctcaag      480
aattttatct ggatgacgct tacatctgct gttattgtat tcatatcatt gatttataga      540
tttgatttca atttcaagtc attgttttgc ttgtgacacc ggagatctaa tatatccagc      600
ttatccgata gcttaagcat gtcctgttct atcttttatt ggtgatacgg gcgtaaattct      660
gcgtcgtttt gatattgggtg tgtcccgcat cttcgacacg gattcgatgg gaacgccttt      720
gctcaaagac atcgtgcaaa tgtgtgccgg gccatgtggt aaatacaagc ctaagcaagc      780
gtaaaggaac ataggtggaa atatggtaac tggttgtgaa ttagttgttt ttcattgttct      840
gcgacagata gggataggca aaacagtatg ggatattgag actttcagtt accaaaccgt      900
taccctgttg tttcccgaac aaactgaggt atgattattg gaagaatttt tctcatacgg      960
tttcttttta tctgtttatc atattttgcg tatcagagaa cgctttgata acgggtaatt      1020
ttgcccataa gttaaagcgt atgaagatag agaaaattcaa ggtgttgctc tacctgaaaa      1080
gagcagaccc gacaagtcgg gcaaagcccc gatcatggga cgcattacgt caatcgttcg      1140
atggtgcagt tcagttgcaa actctcctgt actcctactt atggaatccc cgtgagagtc      1200
gattgaacgg taaaagcaat gaagcgtaga ggtcaatgcc aaattagaca agttgttgct      1260
ttccattcat gctgattcga caccttggtg gaacgcaagg cagactttga tgccgaagcg      1320
gtcagaatct gtttcaggga agtctcgaac ca                                     1352

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(2) INFORMATION FOR SEQ ID NO:113

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 633 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...633

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:113

atccccgaga	attcgcttcg	acaaaagctc	tgatgctaaa	aatcaagcat	agcgacaaga	60
gaatacacg	aacaggataa	gatgaatatg	aacttcttct	tgacataaca	tctgttggtg	120
tcagcaaata	ttttgtttat	aaagatgatt	aaatttagga	acaaagtact	ttaaacaatat	180
cactgacgac	gagaaaagag	gagggtaaag	ctattcttag	aagcaactcg	aataatgaat	240
gactagcaaa	ccaagctcgt	aatgcagttt	gtggtgagcc	agaaaaagta	ttgacgtttt	300
tgatgataga	ctgagcagga	aagcctgtcg	ttactatacc	gtagtgaata	ggagcaggca	360
aacattataa	aagaacttga	tcagtaccaa	gtaaatattt	tgtaggggat	gatgcttcag	420
attatagcgt	agccgatgct	ttcgtgatgc	gatgaattac	cttgataagg	caacacttgt	480
cgattttgca	aggggcgaaa	gagataatga	cttttgca	agccttcgag	tgcaaggaaa	540
agaacctcaa	gagaaaaaat	ctaaaaaagg	gaaagacaag	gccacttcgc	tcagaatctc	600
tttgacagaac	accagatgat	caataaagaa	tcg			633

(2) INFORMATION FOR SEQ ID NO:114

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 868 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...868

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:114

gagaatccaa	aagcgtaata	gaaaggtata	caagcaaaat	taggccttcac	ggagttggtc	60
ttttttctta	catttggtga	ctcaacaact	aaatgcccat	atatgctacg	acttcatata	120
acatcgacaa	acagtaaggc	cgattttcta	tcccacatac	ccactctccc	atcgcgaaag	180
gagagaaaaag	aacgctatac	ctatgacgaa	caagcaggaa	taaggctatc	aatagccgga	240
caaaacataa	ggcacgcacc	cgattcgagg	ctgaatcagg	tgcggtgcctt	tctttatcgc	300
ctgtcgaaaag	ggctttcttc	atctacgata	tatatataaa	tgatgacaa	tctatataga	360
tatggaaatc	gatttatata	taaattgaaa	acattaatat	acagatcgaa	aatgatttat	420
atataaatcg	aaaatgggtg	aatacaaatc	gtttttccat	ttcttagaaa	cccgaatccg	480
agctaaagaa	ttcgttttac	caccttttgg	ggttcaaaag	gctcttactt	tcagggtgcta	540
tttagaatca	ttcaaaactc	atcttcgttg	ttgaaaactt	ttttgggtgt	atttttcagt	600
gtttgccata	agctccggag	agcagagaaa	aaggcctcca	cgattgattg	tcttcctccc	660
cctatcctac	ccccaaaaat	accgcttagc	tacttatcga	tagtatgagt	gcggctccgc	720
tcttgatgcc	ggcagagccg	aaaaagggaa	tcgtgcttca	ttatttatta	cttttgcgcg	780
ataagttctc	gtgcagacgc	ggccgatgac	cggatcgtgc	acaggagaag	caaaacattc	840
ttacaggacc	aagcgtacag	tatggaaa				868

(2) INFORMATION FOR SEQ ID NO:115

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 751 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...751

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:115

cgatcttctt	ccagtatgta	ggccggagat	gctatgtcgt	ggtattttgc	atctcttagg	60
attagttctc	attcgggtatc	agttccaaga	acagctctgg	agctgtgcct	catcaatgac	120
agagggggcg	tcatcatga	catcccgccg	gcattgttct	tcgggaaggc	gatgcagtcg	180
cggatgctgt	ccaaacggcg	aagagcgata	cccagcggtc	taagcccgtg	agccaatccg	240
ccgtgggagg	tgtccgtac	ttgaaggcgt	tcatcaggaa	gccgaactgc	tccttgcttt	300
ctccggcgta	aagccgagca	actcgaacat	tttctgctgc	aggcactgtc	gtgaatacga	360
atggaaccac	ctccgacttc	gacaccgttg	ataccatata	gtaggcattg	gcacgcacgg	420
cacctggatc	ggtatcgagc	aagggatgtc	ctccggcttc	ggactgggtg	aggggtgggtg	480
catggcgtag	atcgcttcgt	ttcctcgccc	cattcgaaga	gggggaagtc	cacgacccaa	540
ggcaggagaa	tttaattctt	gtcgcgcaga	ccgagctgag	agcccactcg	aggcgaagtt	600
cgcacagttg	cttgccgctc	ttcatgaggt	cgtctccctg	aggatcagaa	tcaggctcgcc	660
cggttctgcc	tccatcgccc	gnccaactct	tggagcgtct	cttgtgtgta	gaatttgtcc	720
acgtgctct	tgacgtgccg	tccgattcca	c			751

(2) INFORMATION FOR SEQ ID NO:116

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 885 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...885

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:116

cgccggagga	ttcgtatcag	ctaatatcca	ctcatctgtg	tcgggtaagt	gctgaagatc	60
gataacgtat	acgactcaag	cggctatccc	aagcccgcgt	cttcattagc	gtagaagggtg	120
acgaatggga	agagggcatc	gatcgctacc	agccatcgtc	aagaatgca	atctggatgc	180

aaaagaaatc	gtagccaaat	ttctgcagcc	cggtattgtg	ggtcttggcg	gtgctacctt	240
ccctaccatg	tgaagctgtc	ccctcctccg	ggcaacaaag	ctgagatcct	gatctcaacg	300
ccgtagagtg	cgagccttat	ctgacgagcg	accatgtcct	tatctggagc	acggcgaaga	360
gatcatgata	ggcgtgagta	tcctgatgaa	agcattcagg	taaacaaggc	cgtcatacga	420
gttgagaata	ataagaaaga	tctattgctc	acctcaccaa	actggccact	gcataatccg	480
gcatagaggt	atgccgttga	aggtgcaata	tcctcaaggc	ggtgagaagc	agctgatcgt	540
gcagtgatcc	gcaagcaggt	aaaaagcggg	gccttgccct	tcagcacagt	gccgtagtac	600
aaaacgtggg	tacgggtattc	gccgtgtacg	aagcagtcag	aagaacaagc	ctctgggtcga	660
gcgcatacgt	acgggttacag	gaaaaaactg	tctcgtccgt	ctaacctcct	cgttcgtata	720
ggtactccta	ttgcgctttg	atcgaagcag	caggtggcct	gccggagaat	acgggcaaga	780
tcatggcgga	ggtccgatga	tgggaccgcg	ctctgctgtc	accggatgtg	ccttgacca	840
aggcagctcc	ggagtattga	ttcttcgata	gagaagaggc	agtcg		885

(2) INFORMATION FOR SEQ ID NO:117

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2231 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2231

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:117

cgtggttgat	ctgcaaatcc	accgattcta	cctttctact	aagaagaatc	ggatttagaa	60
aaagtgtttt	tctctatcga	tcatgcaaaa	gggacaatgt	taataagaaa	tatatgcctt	120
atggcacggg	tttagattct	gtcctaagaa	tctcgttacg	gatctctctg	caaaaaagtt	180
gcaagtagcg	gttaatatgg	ggagtataaa	gattggcata	ataaagattc	gttgtggttg	240
cgcgatgtca	taccttgcat	ttaatggttt	tcgacgaaag	tggcgagaaa	acgaaaagta	300
tactgttacc	ctcaatcggt	atgattatca	accgactacg	ttttttggca	tatgctcgat	360
ggagtagctt	taccggatat	caatgcttct	ttgtcgatgt	tgtaacacat	gctgacaggg	420
tttattttgg	agcagccaca	gtaataagac	gctgttgtat	tcactctgaca	ggaaaaatcc	480
tgttcattgg	ctttactatc	gtcttccggc	ttgtccgggt	catgtaggca	gatagccgca	540
ctgaagatgg	acgcgcttgg	attctaacag	attccgggat	ttatcaaacg	atgacttcac	600
aaactggagt	ttgctccctt	ctgaagtcct	tgtgaccccc	tgctgggtgc	catggttttg	660
ccacagggaa	gtcatacact	ggcattcttg	ctgaaaaaga	tggctctctg	ttctttgcca	720
ccaatatcga	tggagccatt	cttggcagga	gcaagctccc	gaaactttcc	ctgttcgcaa	780
tttcgtactc	aactatataa	agcaaacaat	catccaatgc	tccgtttagt	cggggtgtaa	840
cgcgtacggg	tgctcctgcc	acttccgttt	ggatcacgag	catggaaacg	attggttttg	900
acttgacttg	gctgccggag	ccattcccgc	acaatggaaa	aaggggcttt	ggtgcaaact	960
ccatcggtatg	gtaacttgta	tattatgcc	cagaacaagc	cgaaggatata	aagcagtag	1020
ctgtggcatt	tcgactgata	agggcatcac	atggaaacgt	ggagccgccg	atattatgtg	1080
ccggccgatc	ctttctacac	agccggctat	ccgttgtcgt	tcgtctggct	tttgatgatg	1140
gggcttacaa	tatatatcag	ttgggaggcg	ttagctttca	ggaacattct	tttctcaat	1200
atggaagggt	atcctgaaac	tgaataaaac	aattagtaag	aaccatgcgg	cacggatctg	1260
tgccgccatt	gcttggtttg	agtggtgaac	ggccggatag	ctgctcagga	ttttctctat	1320
gaataggagg	agggttttgg	gctgctcagt	attttggcga	tgcaaacaga	ggttggtcgg	1380
ttcatccgga	gtaggttttg	agttggctcg	acgttacaat	ttaattttcg	ctgggctttc	1440
agtacatgt	tggattggcg	tacattgaga	gcgataccga	taagtccggg	aatgtcttcc	1500

ccgattttgc	tcaagcggat	ttaaggtcgg	cttgactcag	ctccacgtta	gaagcgaatt	1560
taactttccc	cttatagcga	tggctataag	tatcttggta	cagctcggct	gtctcctatg	1620
tagcggccgg	gttgtctttg	ggttttgctt	cgggtgctaa	aggttcgctt	ttgctcccgg	1680
gattactgcg	ggaatgggag	tgaagtataa	gcttaaccgc	ggatcaatgt	cggtatcgag	1740
tattctttca	cgggggttac	ttacgatgct	ttggatgcgc	tgacggataa	aagtgtttgg	1800
ctcaggatc	cattaagatc	aatgactcct	gggtcaaaaa	caaggatgct	acaggggcct	1860
tatgcttagg	attacgtatg	acttcggcct	gcgtaagact	ttttgtaata	acaatagggc	1920
ctcgaaacat	tctaagggaa	tagacctctc	ttggattggg	gttaggtgaa	atatcttgat	1980
agaaaagaga	tagatggaag	gtgatggagc	aagctccagt	cagcagttat	agtgccgagg	2040
catatcgctt	tggatcatgat	ggtaatggcc	gttgggcaaa	gatacgaggg	aaagagcgat	2100
gcgaaaagaca	tgcggccggg	gtggatgctc	tgcgcgtagc	tttgcggtgca	gcagccgggt	2160
gcggtgtgga	atatctcaca	gcctacacct	tcagtaccgg	agaatggaat	cgtccggaag	2220
aggaagtcag	g					2231

(2) INFORMATION FOR SEQ ID NO:118

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1121 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1121

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:118

ggttaccggc	tctctgaaag	tattgcagac	cttttaagat	cagtaagggtg	gtacgatcgc	60
cggttgtatg	gtcaaaggaa	ggtaagggtca	agcgaacagc	aaggttcgtc	tcatacgca	120
cggatatagt	atccacaccg	gagagctggc	tctctgaaac	gattcaagga	cgatgccaa	180
gaagtgggtg	ccggaccgaa	tgcgggtctta	atctgggtca	ctcgaacgac	atccaagatg	240
gtgattaatc	gaagctttcg	acgagatcga	aatcaaaaag	actctctaaa	gatcaaccga	300
gacgggttac	cacccatgaa	cgcgatcgat	ttagccatac	tgaaattttg	gcgataggat	360
tactgaaagg	cctgtttgat	ggtatcatca	aaaggcagtt	tcacttatag	ccatagtcgt	420
tgccacgtat	ggttggtgcct	tcttgccgtt	cccatagaga	cgtggatcgg	accttttttc	480
ggcctttcac	aggcgtggct	catacttttg	ctttgatcgt	tgggttcttg	gctattttgt	540
tatcatcccc	atggtcggca	ataagggtctc	gaaaatcggt	ggcaagacct	tatcggcatt	600
ctcaatcact	tggccggcgg	aatagtcggg	atagggttag	cagctattct	gatgagctat	660
cttttcctga	ttgccgacaa	tgtttttcaa	gagacgaagc	ggacagtga	aatccgtccc	720
ttcgcaatac	ttcgagctgt	atgacctatg	aaaaaacata	gtcccaactt	ttagccccc	780
tcggtgttta	tgaattgaaa	ttcgtaaaga	gcttactcag	agacttcaaa	tatcaagaga	840
acaataatat	attggatgag	gttacaggca	gtgaatataa	atcggcttcg	taaccgacat	900
cgaacagaaa	actataggac	gcggactttc	caagatacag	ttcgtctcat	atctgcgaag	960
aaggaagagc	cggaatggct	ctcgaattcc	gcctgaatgc	ctataggcac	tggtctctta	1020
tgaagagacc	gactgggcac	acctcaatat	tccaccgata	gactaccaag	atattatcat	1080
tatgcagctc	cgaaaaagaa	aaagggggccc	aagagtttgg	a		1121

(2) INFORMATION FOR SEQ ID NO:119

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1335 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1335

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:119

atccccgcaa	gctcgaaaca	cccgaagccg	taacggcttt	cgagggactt	ccatacctga	60
gccgggcctt	gaaccgcgct	tctgcgtacg	cgaaggcggc	aggaagtccc	cgttacgacg	120
agatatacgg	acgaggcttt	ctggcagtg	tgcatttttc	tttcgtcgcc	ggcaagcatt	180
ataccgaggc	ggatgccgat	cgaacatcgc	cgtggcagtc	attaccgaca	ggttggcgcg	240
ccggtcttcg	gctcttcgag	cgaggccgtc	ggccggcaag	ctctgatcaa	tggggcaaat	300
acaccgtctg	cggagtgggtg	cgccatgtga	cccctttctg	cgattcgctt	acggagatgt	360
gtggatgcct	gtgttcaggc	tgtacgaaga	aaagtgaaga	acaacctatt	ctccagattc	420
aatgtaatct	gtctggccaa	agcccgaagg	acttcgatgc	catcaaggaa	gaagtcgggg	480
ccttgactgc	aagtgcaata	gtgtgcagga	gaagttcaat	atcagttttc	ccggccagct	540
gccgatcagt	tcacgacgat	gcaccgcaaa	tttcaccgtg	acgataccaa	cctctggagt	600
atcgccgtcg	cttcattctc	ctcctggcag	tgtttcttgc	atcccggcca	tcaatctttc	660
gggtatgacc	cttagccgta	tgcgtcccgt	ttggccgaat	tgggctgacg	acgctctttc	720
ggagccgtcc	gatccatata	gtccgccaag	tgctggcaga	gaatatgctg	atcagtcctga	780
taggggggct	ttcggtattg	ttttgagtta	tctggtcatg	gccctctttc	cctgtggctc	840
ctcagcgtgg	ggagccgggg	aatgatgcag	ggcgacatca	acgagccatg	ttcaatcccc	900
tcattttcct	gatagctctc	gtcttctgtg	tctgatcaat	ctgctcagtg	cctttatccc	960
tgcttggcgc	atatccaaga	acccatcgta	gaatccctct	cccactaacc	tcatacata	1020
gatattatct	gctacatcat	attatcaaga	tcattccgcg	cgaacgtcgt	gccaaccttg	1080
gatatggctg	gagatgctcg	tcgtatgtgg	cctgctttgg	ttcgctcagga	ctatgccgtg	1140
acagctctgc	gtgcttggac	acgcccattg	aactacatat	agaacacgtg	taccgcatca	1200
cgctggcaac	cgtacaaaaa	gataagatgg	aaaatggaaa	gagaggtctg	cggatcaggg	1260
aaaaaccatg	atgcaaccct	cgatctgac	gctgcatatc	cggagtggaa	gcgcttgtct	1320
ccaagtgggg	cggca					1335

(2) INFORMATION FOR SEQ ID NO:120

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 530 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:120

cctgaaagta	atatccggat	caaggggtgt	gcagaggagc	atgtcatcct	gtcgcacaag	60
ccatcgaaca	tatctaccag	atcaccgaaa	cgatcgcttt	gaggcatacg	gcaagggcgt	120
tgatggtgaa	gtcgcgacga	cgcaaataatc	ttccagcgta	ccatcttcga	ctatcggctt	180
acgactatcg	tgtcggaact	ttccttacgg	gcacccacaa	attctatctc	cagatcacca	240
tgcttacttg	agcggtagcg	aaattggcga	aaacggatag	gtgagccttc	cgtccagctt	300
cttggctaca	gctttcgcca	ggtcgatacc	gcgccctacg	gctctataatc	gatatctttg	360
gaaggacgat	tcaagaatat	atctcgcaca	taccacccac	gacataaggt	ttccagtccc	420
aactgatctg	ccactttctg	cataagacgg	aatatcggga	tgtcgattta	ctaagaatta	480
actctttgtc	ggcattctaa	aaaatcaagg	aatggattgg	ccgacaaggt		530

(2) INFORMATION FOR SEQ ID NO:121

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 457 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...457

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:121

cagcttgagg	gtcccgagtc	cgcgctgaat	ctgaatggta	ctggcttgat	catcagacca	60
ctccaattgc	tccaatatac	tttcccgtct	tccatacctt	gacaggaact	ccgttgatga	120
gtacaccgaa	ggtgtaagtg	tcgaatcacg	cacattggta	cgaccatcac	cgaaacctcc	180
gcttcctttt	gtcgtaaggt	agagggagtg	gatttaacca	gttcgggaaa	ttcgacattc	240
aacgagctgc	ctgaatatca	gccacacgga	tattggaaac	gggtaccggc	gtcaacggtc	300
tttgggcacc	acagaggcta	ttacctgaat	ctcatccaag	ccgtggcctg	gggatcgagg	360
agaatcgtag	cgagggtctt	ttgagaacct	ctcctataga	gcgagttacg	gtagcataac	420
ctacgcaacg	gaaagttaag	aagatttggc	cgttact			457

(2) INFORMATION FOR SEQ ID NO:122

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 495 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...495

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:122

ggcctcatcc	ggtatcggag	ccatcagctc	tgccatctgg	gtatgcgtga	ggccggcgac	60
catatcgtag	ccggcaagac	gctctacggc	tgacacctgc	cttcctcacc	cacggactga	120
gccgctacgg	tgtggaagtc	accctcggga	tacccgccat	ccggaagagg	tggaggccgc	180
cattcgcccc	aatacgagct	cgtctatctg	gagactccgg	ccaaccccaa	tatgtacctg	240
accgaatcaa	ggcagtcctg	gacatcgctc	ataagcacga	aggcgtagcg	gtcaggtgga	300
caatacctac	tgcacgccct	atatctgccg	tccgctggag	ctggtgccga	catcgtaggta	360
cacagcgcca	ccaagtacct	gaacggacat	gggacgtcat	cgccggattc	gtcgtaggta	420
aagaggacta	catcaaggag	ggaagctcgt	cggcgtaag	gacctnacgg	nggccaatat	480
gagtcgctcg	tgctt					495

(2) INFORMATION FOR SEQ ID NO:123

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 603 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...603

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:123

cagcgactgc	tcgaatccct	ctctcgtcgt	cggagggacg	aagtggagcg	cgtggtggcc	60
atgtcgttta	cggacttcag	ccacgaagcc	gtctcttcgc	tatcgtgccg	ctcccgatga	120
gcagcacccg	atgataacct	tttgtctttt	tcgctctttg	atgccgaagg	tcgtcaccga	180
tagacggggg	aaatatccca	agggcaacac	agtcgccacc	atcataaaga	agagccgcag	240
gtagacgccg	tgtcgtgtac	gatgtcgtcc	accacgagca	gcagaaagac	gacgcggatc	300
cgaccagcac	cgacgccacg	gtcgtcagca	gttcggatat	tcgcttttgg	ctatgggttt	360
gttgtagtat	cccagagagg	cgaagagaga	gaccagaaaa	gcagatagag	gatccccacc	420
cacaggctct	tggcgttgaa	ggatattcgg	acagagtgga	gtatatgcgc	tcttgctctt	480
ccgtgaggta	cgcagcgat	tgtagctcaa	ataggaagcc	acaattaccc	gaagacatcg	540
ccagcagata	gcgccaggcg	gtgtagcttg	catacgtgtc	aattggcgat	caacctccac	600
ttc						603

(2) INFORMATION FOR SEQ ID NO:124

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 858 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...858

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:124

cctgatactc	ttgctattca	gtgccctcgg	tgtggtcgca	accggtattc	acactttttc	60
ctccgcttgt	ccaatgccgt	tttgtatgg	caggagcgg	ctttctggtc	cgtatgccac	120
gctatatcag	ttatcggtt	tttgtcttat	cggccgtatc	caaagcacat	tgttgctctc	180
gatctgttgt	ttcctctatt	ggacgacaag	gggcaactca	ccgatttcga	tttgtgggaa	240
agcctttttt	cttggctttg	ctcttcttcc	tgttctgttt	tgtcttttgg	ctgtgaggat	300
gttttatgcc	ttgtgggtg	atcttcttgc	cgatcgtgag	actagatgat	ctggagaggg	360
ggttatgcgt	tgctcgaatg	gatgtggggg	atctcctttt	tcccgttgcg	gtcatctatc	420
tttatatgcc	acaattatat	tgctaagcta	cttgtttacca	gctattttcg	tgctgtggag	480
attagtgcct	tcgctaaaa	gatacgattc	ttctcgatca	gggaagtagg	ttttttccac	540
tttctttgta	cctttgtgcc	cacgaaattt	taccgttggt	ttacttgatg	ccttattgga	600
gtggtcggta	aacaataaag	agataatggc	tctatggagt	aaaagtaaag	aagataactca	660
tttcacagcc	acaacccgta	gcgggtggtc	gccttattac	gatattgctc	agaaacatgg	720
ctgtgaggtc	gtgttcgtcc	tttcatccaa	gtagaagtcc	cgtcagtgcg	agagaatttc	780
gcaacaggaa	agtgaatatt	ctaagaccat	tcggccatca	tcttcactgg	acctaccagc	840
tatcgaccat	ttttcagt					858

(2) INFORMATION FOR SEQ ID NO:125

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1879 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1879

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:125

agatgctgaa	atcggcattg	caagtcgacg	agttggaatg	cgtgttctga	attgtgcat	60
gctgcgaccg	aattgtttac	gctctttgg	gtacttcacg	tctcgtccat	agctccctgt	120
gcaataccga	gggcctgaga	tgcgatacga	tacgtccgcc	ttcaagggtt	ttcatggcga	180

tcttgaagcc	accgccacgc	gaccgagaag	atttctctttg	gggacgatac	agttttcaaa	240
aataattcgc	atgtagccga	accacggata	cccattcttaa	gctctttctt	tccgtagaga	300
acccgggag	tcttttttca	acgatgaaag	cggtgatacc	acgggtgccct	ggctctttatc	360
tgtcatggca	aataccacgt	atacgtgagc	atttcggcat	tggtgataaa	aatcttggtta	420
ccgttaagta	cgaaatgatc	tccttttctt	cagcaaaagt	ttgctgagca	gcagcatccg	480
tacctgcatt	ggttcggtaa	gtccaaatgc	accgatccat	tcgccagaac	agagtttcgc	540
aaatacttca	tcttttggtt	ttctgttcca	ttttcgtaga	tgggagctcg	cacaaagatg	600
tgtgtgcaga	gagaaccacg	cctgtggtag	cacataccgg	cttagttcct	ccactgccat	660
tgaatacatt	acgtttgtac	cgccggacca	ccgtattcaa	cggggaaagg	gatgcccatac	720
agtccgattt	cgccctcttc	tttactgttt	cgatggggaa	acgttcctgc	tcgtcaattt	780
ctgcgccaga	ggttttactt	ctttctcggc	gaaactgcgg	atcatctcaa	gaacaattgt	840
tcttgggggtg	tctgagaaaa	gttcataatt	cttgaagttt	attgggttgt	agtgatacta	900
aaaactcttt	tattgttgca	tcgggatgat	ccagaagcaa	aagtcaatga	agcttcagtt	960
gcagcttgta	cttgttctgc	gtaaaatccg	gatgtatttc	tgttacgaca	aggccttttt	1020
ccgggcacat	tcgatcacac	acatttctgt	gataatccag	tttacttgtc	cttttgccata	1080
agtggcaaag	agcatttttt	catgattttg	gggttaccct	tggcagttgc	tccatagcta	1140
aaattacctt	gcgggttcct	atcagcaaat	ccatggtcct	cccataccgg	gtgctttctt	1200
gccgggaatc	agccagttgg	ccaagctcca	ttttcgtcta	cttgacgtgc	tccgagtaca	1260
ctaacatcca	catgccacca	cgaatgatgg	caaagtgggt	agcactatca	aatgaagcag	1320
ccccggaata	gccgtaatgg	agcctcccc	tgcattgatc	agataaggat	ctctttgcct	1380
gtttccggag	cagggcccat	cccaatcatg	ccattttcag	atgcaaatat	acttgcactc	1440
cgggttttag	gtaattgggc	accatcgtcg	cagacctata	ccgaggttga	ccacatcacc	1500
atctttcaat	tcgagggcac	acgcttggcg	atcacttctc	tgatttgatc	tttttccatg	1560
atgaaaaaat	tttatcgatt	tctatttgtt	attcattctc	ttatgaaact	cctgagcatg	1620
aatgaagcaa	catcatcagc	atatgtattg	gcaccgaatc	ctgcatatag	ccaagctctt	1680
tggccaattc	ataggtgata	cgaggccctc	cacagccaag	atcatcttat	ctctcagacc	1740
ttctgcctcc	atgagttcga	ccagtctatc	agattcttga	tatgcacatc	tttttgtgtt	1800
actgtntgag	atacaaaaaga	ncatcggcat	tcagttcgat	tcctttggna	ataaattctt	1860
catcggaacc	tgactgccca					1879

(2) INFORMATION FOR SEQ ID NO:126

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 662 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...662

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:126

cgggggattt	ctttgtggag	tcgccgatca	tcttgctggc	ggctattatt	ggttcctgaa	60
gatatatgag	aacggcaggt	attgcacctt	tccgcatgca	tcgagtttct	gaacagacct	120
tatgcgcaga	tctttccgat	tctgactctt	acgatgagct	ggccaactat	ctttcacctt	180
ttatggacgc	atgggaggcg	gcgcacagga	tcaacttcag	ggacagatcg	cttcggccaa	240
agaatccgct	ttcgaggatg	atcttctccg	cactttactg	ggtaatgacg	ggcgtgactt	300
ctcgcctcag	atcaataacc	cgaaagaacc	gaaaatcctg	gtgtgggcaa	caatccccgac	360
cgacaaaata	tctattcggc	ggcactcggt	tttacaacag	ccggatcggt	aaactgatca	420
ataaaaagaa	gcagctcaaa	actcgggtgat	tatcgatgag	ttgcccacca	tctacttccg	480

agggctggat acctgattgc tacggctcgt tccaataaag tggcaagtct gtctgggctt	540
caggatttca gtcagcttac ccgcgattac ggagacaagg agagcaagtg attcagaaca	600
cgggtgggaaa tgttttcagc ggtcaagtcg taggtgaacg gccagacgt tatcggaacg	660
ct	662

(2) INFORMATION FOR SEQ ID NO:127

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 395 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...395

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:127

catcgcccat cacacgagtg atgagcaaag gagcggtagc gctgttgcca acttgaagct	60
atgccctacc gatccttttt cttccggaat caggccaagt taaaggactg ctcttcgacc	120
tgtattttccg gactctcctg agctgtcgca acagaggagt caataggaaa aggaagaaga	180
gcagccctcg aaatgtctga cgatcatatc cttgtacta cttgcagagc tatgctatct	240
attctcaacc cttttgatgc gtagcgtaaa ggtaccatcc ttaccattgc tgtaacggct	300
atggtcttta cgaactgacc cggacggccg gcaggattat atggacgtct attttgcttg	360
tctgaccggg agcgatgggc tctttgctaa acggg	395

(2) INFORMATION FOR SEQ ID NO:128

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1939 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1939

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:128

ggtaaatatt atttgataat ccggaagaag ttcggcaaga aaattattca ttcttcaccc	..60
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agattttcca	gcagaagccg	aatccagctg	aatcagttgt	cgtcgatgaa	gagcaattcc	120
tcgataatcg	tgaaatcctc	ctgtgtcgag	ccaccgagaa	ggggcgtaca	aattgggtctt	180
tgtcgaagaa	tcgggcgcag	gcagcctttt	gactgcagca	cgaagctcct	gcctcattgc	240
ggacgaatct	ccgttcgtcc	ctcttggtac	caatcgata	tgaccacacg	atgagttctt	300
cgcttttgtc	gttgaatagc	tgtacttccc	ccgcagccgg	atcatttgga	cgaaaagatc	360
actgatggct	atcgggtgccg	ttttggagct	gtgggggtgtt	cgatcgggtgt	gcggaacagg	420
cgttcgagct	gaatctgtac	tcgttgggtt	tcattgttgg	ctaaagagat	tgtgtatggg	480
gtttatttgg	cgattgcaac	tgattcagac	tgtctcgaag	tgtggcgatt	cgcgcttcgc	540
atcgcttttc	ttcttttgc	ccagttctat	gacagcttgc	ggagccttgc	cacaaagctt	600
tcgttgccga	gcttcttcat	gaccgaagcg	aggaattctc	ctgataggcc	agttcgctcg	660
acaacttctt	gatctcctct	cccacgcgat	caatgcgccc	atcgggatgg	cgtattccag	720
tgtaccgatc	aggaagaggt	agagccgctt	gtcttttctt	ccactcgggt	gatggcttca	780
aggtgcccac	tttgatgatg	acggcatcga	aagaggcatc	gtgttcgttt	cctcttcgag	840
cgtcagcttt	tccttgaaag	gaatgttctt	gccgggtgcg	atgtgcgaat	ggcggctatg	900
atctcccgtg	tacggtcgaa	ggcttgcagg	agtccctgtc	cgctctcatgc	gcacgaggca	960
ggaggcagag	catgatggtc	cgccatcgtg	acgcgggttcg	agtgcacgac	atagctcttc	1020
tgtgataaag	gcacgaaggg	atggagcaaa	cgcagcagct	gatcgaagaa	tccgatcgac	1080
tgccgtaggt	cttcgcacac	atcggctgac	cgtatgccgg	cttcacctct	ccagatacca	1140
ggaggagaag	tcgtcccaga	acagcttgta	aaccagggtca	gtgcctcgct	cagacggtag	1200
ttggagaaga	gatcgtccaa	ctccgcttca	cctcatcgag	acgatacccg	aaccatttca	1260
cggccagagc	cgagcttcgg	gctgcgtgga	cgtttctgcc	tgctgccatc	cttttacgag	1320
gcgaaggcat	tccatatctt	attgcagaag	ttacgtccct	gctccgagag	cgttcgtcga	1380
agagcacatc	gttgccggcc	ggagcggcca	tcacagctcc	ctgcgtactc	cgtcggcacc	1440
gtattttctc	atcagcatga	tcggatccgg	gagttgccga	ggctcttgga	catctttcta	1500
ccctgaccat	cgcgcacgaa	ccggtcagat	atacgttgtc	gaagggtttc	ttgccacggt	1560
attcatagct	gccatgatca	tacgggctac	ccagaagaag	agaatgtccg	gagccgtacg	1620
aggctcgctc	tgggatagta	gtagtccagc	tnttcgttct	ccggatcatc	acatcnccga	1680
atacgttat	cggccatagc	catgaggaga	accactatcc	agcgagtgcg	tgtcctgtcg	1740
cagatcctct	actgtgagcg	agtcgatccc	gtttgcttac	gtgccagttc	cacggctttt	1800
tcggccgtct	ccgcactacg	atacttccgt	ccggcaggta	gtaggcaggg	atacagatgc	1860
ccaccagagt	tgtcggctga	tgcaccagtc	cttcacgttc	tccatccagt	gcggtaggtg	1920
ttcttgaatt	tggccgggat					1939

(2) INFORMATION FOR SEQ ID NO:129

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1073 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1073

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:129

cccgtgcttg	tctcctcctt	gctgctatcc	aaatagagga	tggccgaatg	acgaagccga	60
acagactctt	tcgcgactga	agaatcgccc	gcaatttggg	atgaagccga	tgcttatatc	120
gcggaaatcc	aactgttgcg	aggcgacacc	gcgaagcggc	cgaatatagc	gacagactct	180
tgtcgcgcaa	ttcgccatga	gacagcgacc	tcaactcctg	cgtgtggcag	gcaatgctta	240
ctacctttgg	gcgattcgaa	caaaaccatc	gactatcttt	tcgactacag	cgaagggtgg	300

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1035

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1223

aaggccgacg	tgtgctgaaa	anggccggaa	gtcgganagg	ttaatccgac	cttgtggtat	60
agaaagagtc	ggtattgtac	cggactcttt	ccggtttatc	ttgccttaat	tctatcgttg	120
tatgaccaat	ccgggggttaa	agagccataa	tcaccaaact	attcgacgag	gatttcggga	180
tgccacgatg	atgaagcagg	ataataaagc	aatcggggca	acatcggaga	gagagaaaac	240
ctctcccatg	ctgccccgat	ctgtttgtta	gtactcgcgc	gtcgttattg	aacgtcactc	300
tttctgtaat	atcaccgatc	tgcaagagga	aaacgccctt	gagtggctga	tatctatctg	360
ctggaagatg	ttattaagcg	taactctgta	aaaatctgtc	cgttcatatc	tataagagat	420
gccactttgc	ctaccatttc	tccggtatct	ctatcgtcaa	atcttttgat	gtgggtatgg	480
gatagacatg	aagcctttgg	tgtcgacttc	tcctacggca	ttgctcttct	tcatcagggt	540
gtcactttctg	tatctttctc	aagaaggaat	tcatacggag	cttcgatatc	tctccgttca	600
ccattacctt	gtccacttcg	taaccttcgg	cagggatgga	tgtattttaa	tacgacggcc	660
tgccactaat	gtggaaccgc	tgttcagggc	tgcccatcgg	ccgttagctt	tatctctcca	720
ttttcgggct	ggatgccact	acggaatata	cagagatagg	ttcataaatc	gcttccactt	780
cattgtagat	tctttgacta	ctacatgagt	ataactgttt	ttgaagggta	gtctgaaaaa	840
tccacataat	ctttaagtcc	gaaatatact	aaatctgcta	tgaaggcttt	gggaagaatg	900
tctctgaagc	gagcatttct	ttgtcgtact	ctagtagtac	cagaaatcgt	cacgcccggc	960
tttgacaata	tccattcctt	actgtcgtat	tcgtatatca	attcaaattc	gttcaaacct	1020
gtactggccg	ggatc					1035

(2) INFORMATION FOR SEQ ID NO:1224

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 588 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1224

gatccatacg	gaataataag	cggagggcgt	attccaaaag	gaggggggtgc	gggggttggcg	60
ctctccaatg	ccagactttg	caagacgatg	agcaaaacca	aacgagggtga	tagataagaa	120
ttataagcga	tttgttcata	ttctaattgag	gcttaaccgg	taaaagaaag	ctatctttgt	180
atgtcacaaa	gatataattat	tgtacggcta	tccgtatata	aataacgaca	gaaccgaatg	240
gaaataaaaa	ggcggcattt	gtaatcagta	ataccgatgt	gcgcaaatgt	cctgtacgag	300
gctccccgaa	tatgctttca	tcggccgttc	gaatgtgggc	aaacctctct	gatcaatatg	360
cttaccggcc	aaaagggact	ggccatgacc	tccaaaagcc	gggcaaaacg	cagctgatca	420
accattttat	catcgacgat	tgtggtatct	ggtcgatttg	cccggctacg	gatatgcccg	480
tttgggtgcg	ccaacaggga	atccttgccg	aggatcatcg	agacgtacat	cctctgtcgg	540
agcagctttc	cagtctcttg	tcctgatcga	ttgcaggcat	gaacccgc		588

(2) INFORMATION FOR SEQ ID NO:1225

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2199 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2199

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1225

gagaaaggcc	tcgcgctttg	atttcgatcc	gtcgaacttt	cttaagtagt	cgcttgtctg	60
cacttatctc	tgattaaggg	acttctactt	tgttcaggtc	tcattgacga	cagcatccgg	120
agtcaaacta	ttagcctctg	cctcatactg	agtccgatac	ggtgacgcat	cacgtcatga	180
catacggcac	gtacatctca	ggaatcacat	aacctctatg	cttgatgaag	gcgtatgcac	240
gtgcaccaat	gctaaattga	tagaagctcg	gggcgaagct	ccgaaactga	tcattctttc	300
agagcattca	agccgaattg	ttcgggatat	cgcggtggcaa	aaaaatatca	actatatatt	360
gctcgatctt	ctcatccaga	tacacctgcc	tttcaacttg	cgcgcttcca	gtatttcctc	420
cgtagtgtat	atcggacgaa	ttctgccgac	cggccaccga	tattctgacg	aatgatctgc	480
atctcctcct	cttttgggga	tagtctatca	gcaccttcat	catgaatcgg	tctacctgtc	540
ctctggcaac	tgataagtac	cctcttgtct	gataggattc	tgggtagcat	tacgaggaaa	600
ggctcagggg	gcttgaaagt	cgtttcccca	atggtaactg	tctctcctgc	atcgcttcga	660
gcagagcact	ctgcactttg	gcaggacacg	gttgatctca	tcagccaaaa	taaagtttgc	720
gaaaataggg	ccttgttttac	ttgaaattcc	tcccgtttct	ggctgtacat	catggtacct	780
accagtcagc	tggcaagagg	tccggtgtaa	attgtatgcg	gttgactttg	gcataatcag	840
tccggccaga	gttttgatag	ccaaagtctt	ggctaattcc	ggactccttc	gagcaggata	900
tgtccatcgg	ccaacagtcc	gatcagaagc	gctccaccaa	atggttctgt	ccgacgatat	960
tctgcgccat	accgtgcgtg	tgagattcac	aaatgagctt	ttctgctcaa	taagctctgt	1020
gagagcctta	tgtcaatggg	tttcaactcat	ttttttctat	atcttttctt	gctaaatata	1080
atgaagatta	tgcacaccat	ctcatgttga	gatagacata	tagcatctgc	agggtttaag	1140
cgcgaagtcc	agccaacggc	cagcattcgc	tcgatcagag	caaagccttc	tccctgattt	1200
cagcaggcac	ctttactttca	taacgtttgt	gcggagagct	tccaagacct	cccacaaacc	1260
tgtttgtttc	atataaaaca	gcggttgtcg	ggttgaatgg	caataaacgt	tttacccgga	1320
tttctttccg	caacacgtgt	agcgtctccg	gctctgtcgc	aataacaaac	attttttgtc	1380
ggactcccga	gcatgattaa	gaataccggc	cgtggaatac	aaaagcagcg	atcgctactc	1440
agcactcgtg	gcgaatgaga	gccctcgctc	ccggatgaat	gagaatatca	gcatcgggat	1500
acagctccat	agcctctaaa	tggattcttc	cgtaattcgc	tcatgtacga	aacacgaagc	1560
attccaaatt	ccatctcccc	tcctgtcttt	cgcgagatat	aagctccaag	gtttctaccg	1620
ggccaaagag	aattttttctg	tctcgaggca	agctctccac	taccttagtg	cattgctgct	1680
tgtcaagcaa	gtagtcgcgtc	caagccttta	cctcgcaggt	cgtattgaca	tagctaacga	1740
tgagtccatc	ccgggttctg	ctcctccacc	gacgcaagcc	ttcagcagag	gcaccttcgg	1800
ccaaagaaca	accgcgtatt	tcgtgggagt	gaggatagtc	ttctgcggcg	aaataatcga	1860
agcgtttcgg	ccatgaagtg	gactccgcaa	aagagtatcg	tatccgcctc	ctatcggcag	1920
cctgacggga	cagaccaaga	gaatcgccga	tataatcggc	atgtcctgca	cctcagggcg	1980
tgcatagtag	tgcgccaaaa	taatggcatc	cgttctttct	tgagaagttc	tatctcctta	2040
agaatatcct	ttgtttgcta	caaaaaccaa	cttaaagctt	aattgagtaa	ggaggaaatt	2100
catgctgtgt	ccatggccgt	aacgctatga	gtcaaagcgc	ctatgctgat	gtaatcacac	2160
ccgtttctgc	cacactttgc	agccgttcga	gtgtcatat			2199

(2) INFORMATION FOR SEQ ID NO:1226

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1796 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1226

```
gggggagcga gccggtcagc aaaggactgc cgagcgattc ggcaagaagc gggtcagtgg      60
atgaagagcc aggcggatac ctacctgctt tcgattctga aaaccttagg cagcgaactt      120
ccggccggta ggacgaaggt atatttcgca tgtggttgtc cttcatatag cggaatgcct      180
cgttgtctat acggcatatt cggtcgccat gctcatgtcc gaacacatga tcgagaggct      240
tttgcccgag gatccacacc ttccagctcg catatccgct ccacgctccg attcgaaggg      300
catcgcattc gtaggcatac ccaacttcgg tgggatatag gatactttgc cgtcgcaag      360
agccgatacg gcacgttcca attctcgtct gtgggattgt cggggtaaat cttgatgatc      420
atatcatttc agtgtatatc gaatagggtg aaagtcttat actgtcttct tttgtgaagg      480
tcggttagctt agtagttgta ccagctacc ctgccattgg ctgctgcgta gcagccgttg      540
atctcggccc gttgtttata gttaatatata ggatgccgaa ggatactact cctacgactc      600
cttttagatc gatacgatcc ggcttgattc ctattttaac catgggtctca gagcgcaaaa      660
gcgttcgtag tccatgccgt aaacctctgt agctgtagca cggtatagta gccgccaagc      720
tgtcggcggg aggatcgatg cggcgagcga atgtaggccc tatcccgggt atgcgagtaa      780
gggtgccgaa tcggctgcat tcaggtcgat caccgtaccg cgaggaaatt tatggccgat      840
cgggcatagg cttctctgac aggaggcccc acgtagtcgg caccgtcacg atgctgtcgc      900
ggcttttctt gcgcgattgt tccgaggatg ataaggcctg acgtaattct tcttttcttc      960
ttttctaccc ggttcatcag cgacgtttga acagcttcgg ccacagggtc attgccactg     1020
gccggccttc tttgaagatg aatagcccga cgatgaccat cagcaggagc aagatgctat     1080
aatgctttcc cgatttgccg aagtggaagg agtctttcat ctgtgtacgg ggctgtttgg     1140
cggttggggt attccgagaa gtagtagccc tcgcgctgtg gaggatgcgg tcggtgccgg     1200
ctgccaattt ctcatcgtgg gtgacatcag gaaggctctg cccatctctc ggcacagacg     1260
gaagaagaga gcgtcagctc ttctttgtgc gctgagtcca gactgccgct cggttcgtcg     1320
gcaggatgat ggccggatgg ttcaccagag cacgtgccac ggctatccgc tgttctcacc     1380
gccggagagt tccgatggct tatgcgaagc tctgtcgtcg agttcagatc ggaaagcagc     1440
cgtttcagctt cgcaagaagc ctcttttcgg tctttccggc tatcagagcc ggtatcatca     1500
cgttttccag agctgtaaat cgggtagcaa tcggtgaaat tggaagatga atcccagccg     1560
tctattgcaa attcggcttg cttccgattg ttcatgcccc ttatateggt gccgtcgtac     1620
gcaattctcc gctgtccgcc cgatcgagcg taccagaagt ttgcagagcg tggctctttcc     1680
ggcaccgctt gtgccgacga tggagactat ctcccaggtt cgatggcaat atctaccctt     1740
ttcagtactt ccagagagcc gaaatcttgc gaatgttgcg agcttctata atcatt         1796
```

(2) INFORMATION FOR SEQ ID NO:1227

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 611 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1227

gccgacggcc	ggaatgtact	tgccggtact	cgcctgccga	taacgactcg	ttggtgctac	60
gggtgatcaa	cggctatgcg	ccgcttcctg	ctgattcgca	ctgatcgacg	aatcgatcac	120
ctacggttca	tcgcaggaca	gtgcttcggg	aagaccgaag	aggagaatag	cgaatcgtgg	180
tggtaatcgg	gtatacttat	ggaggaagaa	cttcagtacc	ggatgactcc	cgagatggcg	240
gagctttcga	cgaagacgat	gcagaggaca	tctcggacgg	cggactcgac	ccggggaaga	300
ggacagatac	gaacatttcc	gcactgtagc	agatccggga	cagcacttat	tcgtatcgac	360
aaattccttg	tcgacaggat	gaacaacgcc	accgcagccg	tatccaacaa	gcggctgaag	420
ccggtgccat	attcgtcaat	gccgaccggt	aaagagcaac	taccggatca	aaccgggcga	480
tgtggtcacg	tggaactnct	ccggccacga	cgggaattgg	agatcattcc	cgaagatatc	540
cactcgatat	agtgtatgaa	gacgatgtac	tgctcgtgat	caataagctg	ccggattagt	600
ggtacacccc	g					611

(2) INFORMATION FOR SEQ ID NO:1228

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 515 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...515

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1228

tctcctccga	ataaccctcc	gtgtggcttt	cgagcaatct	gtcataggct	cgttataagc	60
attctgcccg	ttgtagaata	cattatagcg	cgtagtgaat	tgtgatagaa	tcgggatgcc	120
gccgtattct	tcgatgtgga	gcaggacgca	taccgaatac	gacagctacc	gggatgagca	180
gatagaatac	gaggagtata	gaaatctatg	gctacgcatg	gacaaaggac	ttaatcgttt	240
tggctaaagg	aacaaggcca	ccagcaccag	aatgatgaag	gctccggaag	ggatcccaac	300
ctataactgc	cccagagacc	cgtgaaggct	gccaaagccg	ccagattaca	gaaccgaaca	360
ggatcgaaga	gaagtgcgaa	gtgaaaagat	tctgatgctc	tgaggaaggg	tcaggagcga	420
catcagtagc	atgataccca	caaacggata	ctgagcacaa	tacccacagc	cacagccacg	480
gacattaagc	tcttcacgag	gtgaacccta	attcc			515

(2) INFORMATION FOR SEQ ID NO:1229

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1886 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1886

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1229

tcgcgcata	ccagctcacc	gtccacatcc	gatatggcag	gcttacgctg	ggggattcgg	60
cagccgcgg	cactcccatt	gcattgggtc	gcggtgtctg	atcagagctt	ttgtcatggc	120
attcaccgtt	tcggcctctt	ggtggataag	gaggctccct	gacgggcctc	gaccagcttg	180
gcacgtgcaa	tggctctccg	aagtatgcga	gggcaaactg	cttgttcagc	tctacagcct	240
gatcgaatcg	acgatggcct	gtcccaaatt	ctgtatcagc	atatagtcca	aagccgacgg	300
aagcacagat	ctgcattgcc	ggcagtcctc	tcggatat	ccgtatgtcc	tggtcgtgat	360
atgccacctg	ctcttgactc	agagctacct	caggttgatc	ggtttgagtc	gcttgggcag	420
aacctttttg	tcgttgaagc	ggcaatggct	tccgagtagt	agacgcgcgg	cacctcttcg	480
gaagaggact	ctcgtagtag	ctgaggacga	atagcggcga	gggctgtacc	tctacatcgt	540
gtcctgaatc	cgcccacgta	tccgactgga	gtagcgtgtg	cgcttctcga	ggatttctcg	600
gatacgacga	gcaggttgaa	cttctctatc	gtttcgtgct	atcctcacgt	gtctctttgg	660
tcgaagtcga	agagctgctt	tttttctttt	ttttgtcttg	ctctgtgccg	ctttttctat	720
gtcgaaagcg	cgccatagtc	ccgttcggct	ccgcgagtgt	cgcccaatgc	ctttttggct	780
tggggcgagc	atagtagccg	acgacaaagt	caggatagtg	tcccagcact	ttgcgaagtc	840
ggtaattggct	tttcgggtct	cgttgatctg	cgtgaggagg	atgcacgggt	gtagagtgc	900
tgatagtctt	ccggctccag	acggatgact	aatcgaaagtc	ctcgatggca	ttgttcacgt	960
caccgaggta	agagcggagc	aggcacgggt	gaaacgtgcc	aacttgctgt	tcggcttttg	1020
gcgaacgact	ggctgtagtc	gtccatggct	ccacgcaagt	cgttcgattg	gtagcggaga	1080
caccgcgggt	gatatagttg	gacagttcgc	tcggctccaa	ttctattctt	tgtccagggc	1140
tgccatagcc	tctgcgttgc	gcttgctctt	gaggtgagca	tggccatctg	cgaataggca	1200
ggagcaaaga	gagagtccat	ccgaatacct	cgttcagttc	gcgaatggct	gcgacggtat	1260
cctgctcgcc	cagcctatcg	cgctgagagc	tatatgtgct	tgcttgcttt	tggggtagaa	1320
tttagcagtt	cggctacccc	ttcccgtgct	tcggcatagc	gtttgctgtc	gggagcactc	1380
cggtcagatt	caccagcatg	ccctcatcgt	tcggcatcag	cccaatccgc	gacggtagtc	1440
ctgaatggct	gaatcgattt	tgcccagatt	tgccgtgcca	cgccccgaag	aagatatgct	1500
ttggggtaga	gcgcattgcc	tgcaaggcagg	ccgaagcatc	ggcttcgcgc	cctgtatagt	1560
cttcagatg	attttggcta	ttccccgata	gaaataaggt	tccgccatcc	acgggcgagg	1620
cctaccactt	ggttgaagta	cccgatgctc	accacgtagt	cgttgagtag	agagcattgc	1680
gcccgatcgt	gatcaccgga	tcgacgtcta	tctgccccga	gctgtggcca	cggagagcag	1740
gagcaggagg	aagaataagg	agcgttgaat	gtcataatca	gagccgggga	gaaatggatt	1800
tgactacggc	ttacgttttt	tgccggtcgg	agctgtcact	acgcggtacg	aagtccgtac	1860
ttgcctttga	tgatatggnt	accgag				1886

(2) INFORMATION FOR SEQ ID NO:1230

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1273 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1273

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1230

ggcgaacgcc	tcgatgcaag	tgacaagaaa	gtttacgaag	aaaaggtagc	gatgctcgcg	60
aagtatcgat	caaggatgcc	aaaaaggac	ggcgactcag	aaagagaccc	gctcgagtga	120
ggatacctcc	agccctgtca	cctcttactg	ctgcctgcag	gagtagccct	tgtggtgata	180
atcctgatac	tcttcccatt	gccaagcgca	gaaaaggga	agaatgagag	aagtcctgct	240
gactaagcct	tattggctac	gctcaagtat	ctgttcgagg	agggagtaca	taatccctcc	300
tcgtccgttg	cttgcacgag	gcggtctacg	cggctttcat	cgccctcgta	acggactgac	360
gcagcacgtc	agccggatgg	aagtcgagac	cccctgtact	cgcccgaagc	cctgcgcaat	420
gtctctctgg	ccgtcatggt	gatctgctgt	acgtcgtata	tatatgtacg	caccggccct	480
cctccttccg	ttgtaccgca	cctgggtgcg	ccatctgccc	ccgctcctgt	tcttccccac	540
ctcttctatc	tgcgctctgag	tctgttctac	gtcctgccc	gttattcatc	gttgagagttt	600
ccatcgatgat	ggccctcata	gtggcagccc	tgagtatacg	gctccctatc	tgtggagagc	660
actcggactc	aagcgagaag	ccttgcaaaa	ccacttggtc	tactttcgct	ctgcaccttt	720
gtcttctgtc	ttgcaccgga	gtattgcacc	ccgactccgc	ggtgcgaaca	gccggcatca	780
ctcagactgg	tggcaggcgc	tctatctctt	cctgatcgtc	ttggcagggtg	cctgatcggc	840
tattttgccc	ctcgcttggtg	ggctataatc	agaagaaaaa	acactgaaaa	aaataatcat	900
cgaatcggac	cggatcctca	tcccacgccc	accactcact	aacaatactt	tcccaatgaa	960
cttcttgtcc	aacgtcatgt	ttgggtctcc	aacggcctgt	tggtaccggt	agtcgccgga	1020
ctcatctatt	cttcatcaaa	tcccttctcc	tcctcggcac	cctcttcggc	acgtggcaag	1080
ctaccgcccgc	cggcaggaga	ccttcgcctg	catcatcgaa	aacaaaagcgg	cctcgacacc	1140
gaagccctca	gagccgaagc	ggccaaacgc	ccccacctcc	gttcgaaaaat	gtgctggccg	1200
aagtccctga	tgcagattcc	gcccgcgcaa	tctgctcctc	ggtcgggtacg	aactctctcg	1260
tgaacagcgt	ctg					1273

(2) INFORMATION FOR SEQ ID NO:1231

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1231

```
ggctgccttg tcgccattca tatctccggc aacaattacg atatctgctt tttcggtttg      60
gctttcccg tcttccttgc tgctcaggtc gggatgggat atattgggta ctgcgaggca      120
agattgtttg gtttatagga aatgcccttt gttgcttttc acatggggca ccatcgacac      180
ttatataccg ctgcatgaaa gataaaagag tcctcgattc cgagtcgcg tatcaagggtg      240
atgactataa cgtcaaggga ttcgattttc gtgctcacia ttcagagaat cccatcctat      300
tctcaaatat atcaaaggaa gtggagccga tatcgtatgc ttgaagaggc agtactgagt      360
cggaaaagca actctcgtaa tgtggggcta cgactttcaa gaaatatctt cccgaatatc      420
gctacatgga actggtcgca tctcgagaag atagaaaagg cagcggcctt atgctcctgt      480
ccaaatatnc atctcggatg tgcaccgcat tccataccga gtccgcattc atggcttcaa      540
```

(2) INFORMATION FOR SEQ ID NO:1232

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 704 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...704

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1232

```
atcccccttac gtggaccata cttgccacct ttttggctgt attgtcatac tctttttataa      60
gagatacaag gagaaccaag ctgcgcgtcc tgtggtgaac ctgaggcccc ggctattccg      120
gcttatgacc gagctattgc agccttgaat cattacgtgc aaaaaaactg gtggaagccg      180
gtttgtataa ggaatattta cggaattgac cgatttgctt cggagctata ttgccgaaac      240
tcgcgaatag atgccaggga gatgaccagc agcgagatat tacaagctct tcagggatcg      300
aacttcctga aaaaggaagt cgcctgctgc atggaatatt gcaacggccg acctggccaa      360
gtttgccaa gataaaccga tacatggaga ggtgtggaag ctattcgaga tgctcgcgcc      420
tttctcgatg aggtgcataa ttccggggagt catgacattt gcatatcctg aattgctttg      480
gctgctgata tgctgccttt gatagcgact tggatatatc tgcaagcacg taagacttcg      540
caacgatgac catatcttca ttgaagccct ttgaaggaag tcgccgagtt tgagggtcta      600
tctgcgccat tcgttgccga tattgagagc tctttcgtcg gttttctcat tattgctttg      660
gctcgtccgc agaataccaa tagctgcaga aagattcgat cgag      704
```

(2) INFORMATION FOR SEQ ID NO:1233

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1106 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1106

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1233

atatttggggc	tgaacgacat	gtcgcctttca	ctcacttttta	tagggcctgc	cactgaaatt	60
cgggatcatt	gtcgacaaag	ttcgacaaga	aaccgatacg	ctttttcccc	cttggtttatt	120
catttcgaat	accacaccca	ttagcggcag	gcattgtgac	ccatggattc	agaggtgcta	180
cccaatgaga	gatccacttg	tcaattttct	tctctccatc	ttgactgaag	agtaagtttt	240
tattgaattt	tgccctccat	tcagagagaa	cacatagtcc	acaaaactta	tttttgcgta	300
ttgttgaagc	cgggtgtaagc	gaaagccaaa	gcaaaagggt	tgcaccattg	ttaagagaag	360
aaggcgaacg	atagttggag	gctatatcca	cacgtacaac	tgcacattgg	agaagtcttc	420
cttatacacg	agtttcgcat	ttgcgcgttg	gcacgcgcac	tgaagaccgc	aactctactc	480
ttatatacctc	gggcttattc	atgagctcta	ccgaccaa	cttgatgtcg	gattcattct	540
acccgttacc	acgatatcga	agtcttgaaa	ctgataatca	tccgatggtc	ccaatccctc	600
aacttttggg	atgtggcacc	ttggtctttg	gagcggagat	cttcacattg	ctattgccgg	660
tgtcgtatcc	actgtgggtc	attacaagat	ccatccgttg	tccgccacac	tcacccctgt	720
ttgtaccagt	ttttctgatt	gtactggacc	accttgacat	catctcctcc	catcgctctg	780
gcttggcgag	aggacagagg	gttgcgacgg	cgaaagccgc	caccacgaat	ttggtaaaac	840
ttttgtcttc	atagtttttg	tctttttttt	gagactcaat	cgacaggagc	cctccagtct	900
cttgaattgt	tgattagcga	ttagttttgt	acttgatttt	cacgagagca	cgatggctca	960
tgattctctc	ttcacggttt	cgttccttgt	ttttactttt	tactgattgt	attatcgttc	1020
acccatggca	agagtgtcca	aaatcgaaat	cggcaattcg	cacaacgcgg	aatgcatgtc	1080
ggcctttctca	tgccacaaag	gaacgg				1106

(2) INFORMATION FOR SEQ ID NO:1234

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 989 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...989

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1234

cgtcgccgtc	atgctttgat	gggagagcgt	atcggtatgg	atgtactcat	accatatacg	60
acgtatgtaa	ggctctgatt	gacaattatg	cagaagccat	gatttcgaag	gcttcaagga	120
agatctgatg	cgtgcactcg	cgatagatct	cctatcacgc	aagaaatatt	cagaggtaag	180

aaagcagaag	agctgacgat	atgctttttc	atgaagctta	caagtctttc	caacgtaaga	240
tggattgata	gcagaagtgg	cccaccctgt	ggttcatcag	gtattcgaga	cccagccgcc	300
gtgtacgagc	gcatttcta	ccccattacg	gatggtaaac	gtgctataac	ataggatgca	360
atgtgcgtga	agcggatgaa	actcaagggg	aagcatcctc	aaagaatttg	agaaagctat	420
cgtactgcat	actatcgatg	atcttggaag	gaacatctgc	gtgagatgga	cgagcttcgt	480
aattccgttc	gaatgccagc	tacgaaaaca	aagatccact	acttatctat	aaactcgaac	540
ttacgaactg	ttccgcaaga	tggtagaagc	catgaaccgt	aagaccgtgc	gatacctaag	600
cgtgctcgga	taccgggtacc	ggaggctcct	tccaagagag	gctggaacac	aggcggcaaa	660
tagaaatccg	acatgcagcc	gaacaagtac	ggacatgagt	aagtatcgga	cacaaaaaga	720
cgatatagaa	gcccacagaa	agcacaaggg	gatgcggcaa	gcagacctca	gggtgcagct	780
gctcccagac	accgataaga	aacgagaata	agatcgggag	aaacgatcct	tgtcttgagg	840
tagtggaaca	aagttcaaac	agtgccacgg	gcgtaacctg	taaaagattt	atgagagaat	900
caccgactat	ggtatagaat	agtctgngat	ttctttttat	tttttctctc	taccgcgata	960
taaaaaagac	tatgatacta	ctatgaccg				989

(2) INFORMATION FOR SEQ ID NO:1235

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 837 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...837

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1235

gcgatttatt	ttgtgggggtg	caattcatgg	agtggcactg	gccgtacaca	actctgggtgc	60
gagatctttc	cgtcgaatcg	ggctatgtcc	acggatatcc	tttttggcgc	agatggctcg	120
gacggatcat	tactttccat	ctcgtctttt	gggttggatc	ttcttccgat	ccgattcgat	180
ggcgggtggc	ggacagttct	tggacaaata	ttcaacgact	tccatcccga	agttttcttc	240
caattattgc	cggctacaag	ggcgttgctg	tactgatggg	cataggttac	ctgtgcattt	300
tgtcggtaag	ggtaagcgaa	acagggcgca	atccatgctt	gaggtgctcc	gttcgtcttg	360
caaaactctga	tgctcgttct	cctgatcttc	atatcattca	ggtacgcagc	tcggaaatac	420
agcccttcat	atatttccag	tctaaatatt	cttactgcgg	tctcctttca	tctaagtga	480
cgataaggat	tgcctgttag	gactctataa	gttcggcaat	cttccaaaat	gagactgttc	540
atggggagttt	gattgagctc	ttttgctgca	gagctgattc	ttagtgtctc	gggaaaggtc	600
aaacctccgg	tatatgggca	ccgagcaaat	agaaattccc	caggtttcca	ttagagaagt	660
actcctttcc	tcgtcaaata	ggcgagaata	agaaacgatt	gtcagccgtt	tcttgctccc	720
tgcattgatgc	aggaccgatt	gtcggctgtt	tcttgctccc	tgcattgatgc	aggacgcgat	780
tgtcgtctgt	tcttgctccc	tgcattgatgc	aggacgcgat	tgtcggctgt	ttctgtct	837

(2) INFORMATION FOR SEQ ID NO:1236

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2566 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1236

ccaatagctg	agcagcatca	gctgaaagat	gatgcgcagt	gcccagtgta	tcgagaagga	60
gagcgataat	agagcaatgc	gaatatgcct	gttcctacag	tatttccacc	cgattgagaa	120
gcagtgtgtc	ggcgtcgggc	atgggtggcg	cataataagg	aggatgatcc	ccgtgatgat	180
gacgtaaaagc	aaagccacac	ctctgtgagg	atcagtagcc	gattggcata	ggcttgccct	240
acggtgcaga	gatcgtcact	gctttcctcc	gctgtttctg	ctgtcgtttc	atgaggttga	300
gactggtggc	gtatatagag	gtcttcgatg	ataccatctg	ccatcctacg	ataggagcaa	360
tgatggtttt	ggctccggtg	atgtccgcca	cccaaggaaa	atctctgctg	ccgggatgat	420
tacatccgcg	cggtcggggt	taggtggaag	cgtaccattc	gttcttcggt	tgaaatgggc	480
ttgagcagggt	gtatgtcttg	tgcatgtcct	ctaccggcat	gatgctatag	cgagaagacc	540
cctgtccgat	ccgctcagac	ggacaaggcg	attgatattg	cctcccgtcc	gataatcgtg	600
atgtcgggat	attcttttgt	aatggccatg	agttccggcg	gaatgcttct	cgaacatagg	660
ggcgaacctt	ttcgctgagc	agacgtccgt	accgatgtcg	aacgactgcg	aatgcttgat	720
atgggtatcg	gagaaaagtgt	aagctcggtg	ctacctccac	cgacgtccag	atagatgtaa	780
ttgctccgtc	ggaaataatc	tgttcgatat	gattgtccga	aacgaggcgt	gcccctcatc	840
tccatcaatg	atgtctatat	ggatacctgt	tttctctcgg	attgtgcgat	cacggcttcg	900
gcattcggatg	catctctcat	ggcggagggtg	gacaggcgcg	atagtccttt	acccgatata	960
tctgcatcat	ctcatagtat	cccgcgatgag	ccgtaccatg	ttgtctgtct	tttctctccc	1020
tatgtatcct	tggtaaaaga	gtcttcgccc	agacgaatgg	gaactcgcgt	gatcagcact	1080
tgctgagagg	ctcctccatt	ccttcgctat	tgacacatct	gatcagtggt	gcacagcatt	1140
cgagccgacg	tctatggcgg	cataatgtac	cttttcattc	tttaacgctt	agtcaggcaa	1200
agatagtcgt	tagcattcat	tcccaatcca	tccctccgca	tggtataaag	tcaaacgaaa	1260
agggctgctg	gaacggagtc	tctctctctc	gcacagcccc	gtttcatatt	tcgctaaagg	1320
ggtagcgacg	cggtttgatg	tcgagcttga	cgggtctgat	catattctcc	gggagagtat	1380
cgtatccaga	tcctctttcg	acaggatgtc	gtgttccaaa	agaggtcgta	aacgccacgt	1440
cccgtttcca	tcgtctcctt	ggcgatcttg	tcgaattctt	atagccgatg	atcggattca	1500
gagccgtaac	gataccgatc	tgttgcggat	ataccacagg	cattcgtcct	cgttggccgt	1560
gatgccatga	tacagagtgt	acgcagcgta	tcgaatccgt	tcatgagcag	atccgaattt	1620
cgaagcagca	ttgtgccatc	acaggctcca	tagcgttcag	ctccattggg	ctgcatcgcc	1680
tgccatcggt	acggtcagggt	cgttgcccct	cacctatagc	agatctgatt	cattacttcc	1740
ggaatcacag	gattcacctt	acccgcatga	tggaacgaacc	cggctgcatg	gcaggcagat	1800
tgaattcgtg	caaccgcaac	gaggaccgct	ggcaaggaga	cgcaggctcg	tgcaaatctt	1860
gtcaccttca	cacagatacg	gcgcaaggca	gacgaatatc	ctaccatcac	gaagtgtcgc	1920
tcgttgcccc	taccagatcg	gcaactgagac	gaatgtccca	ccggtgactt	cacgaagagc	1980
ctctatgcag	tattcggcat	agttcggctg	gcgcagatac	ccgtgccgat	agccgtagca	2040
cccataattca	cggtcaggac	tcttcggcgg	caaagtccag	atttttgatt	tcatcctgca	2100
agatggagca	aatccgccga	acgtctgtcc	cagagacata	ggcacagcat	cttcgactga	2160
gtacgtccca	tcttgagtac	atgggcaaat	tcgcggctct	tggcagcagc	gactcgatga	2220
gatccagaag	atggggggcg	aacttcagat	atgtgcgtaa	aggccgaggt	ggatagctgt	2280
cggataagca	tcgttggtgc	tctcgagcag	ttcacgtgat	cattggggga	gaggtgggca	2340
aattcgccctg	cccgtgtccc	atgatctgca	aggcacgggt	gcaaatacc	tcgttggtgc	2400
tatatctgtg	gtcgttcctg	caccgccttg	gatcatatcc	acggggaaat	ctcgtgggtg	2460
ttgccttcga	ggatttcctt	gcaggctttc	acgatgccgc	tttctgggca	tcggtcaaga	2520
gaccgagccg	atgattggcc	actgcagcgc	ccatttcgtc	atggcc		2566

(2) INFORMATION FOR SEQ ID NO:1237

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 903 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...903
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1237

cttcgatgat	gcttggagtc	ctctcagatc	actgcgtaga	tggtagcgtc	tctttgcatac	60
cctgctgcgg	gctatcaata	tcgaacctat	cctcgttcga	tgcccggcca	tatgttcgtc	120
ggttattaca	cggatatatc	caaaaaaaaa	aaacattcct	ggagacaacg	atgacgggtg	180
atgtcgattt	ggacgatttt	tccctgatga	gcagttggat	tcgacgatga	taggcaaatac	240
ccaaatcaga	tgtccaagct	gactttcgag	aagtcgaaag	aatatgccaa	caagaatatac	300
aggaaaacga	agctgacatt	cactccggca	agtcgggcta	tatttcttgg	aaatatccaa	360
agacgtgcga	aggcgaatcc	aatccatcgg	cagtagcatc	gcttttgccg	catcgtcctt	420
ttgaaataag	aatacgccgg	atgctatgtg	gcttacggct	atgcaggctc	tcagtacacc	480
tttctgacat	aaaaagtgtg	ccgaaaacgc	tgctgaagcg	attttcgaca	caccctcatc	540
cttatgctta	tatgaaaagc	cgcactgcgg	atagcgtaaa	ctccgaaaac	aagatttgag	600
gattccacca	cctttgtaat	ccgctgtgca	aagcaaccga	aagggtgcggc	ccgccatcag	660
cgatgaaatt	gtcctcggaa	tagttgtatg	atgagtttcc	ccgatctaac	agtgcggctt	720
attcctcgtc	ttctcgtatt	gcaaagttag	caacattggt	tagatttgca	attccttggt	780
tcatgatttt	gggtatgggt	acactttcgg	atcctaateg	gcgttctcga	cgttcaaacg	840
tattacgata	gttcgggttc	ttaggtaatc	tgctttgacg	atggggaagt	tttctccggt	900
ttg						903

(2) INFORMATION FOR SEQ ID NO:1238

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1107 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1107
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1238

atgctatcat	gaaagcattg	tcgatacgca	atttccaagt	gcgcgactaa	tgacagggct	60
gaagatgtat	tcgacgagga	agggtttnga	cattataccg	agatccggat	gacggatgcc	120
cgcagtaagg	gggtggatac	gaccggccat	ttgccggcag	tggggatttg	cttcggggagc	180
tactccattt	tatattcatt	gatccgtttc	tcccgtagta	atccaataac	atcaacccaa	240
taaaaaggat	agttttttctc	gaactaaaag	tcgcaaaaac	aacgaatagc	aattgctgta	300
cgaatgtaaa	ctttgactaa	ctttgcaaaa	gcattttttc	aaacataatc	aacaagaaaa	360
ttagaaatga	aaactcctgc	agaactgaag	tatctaagga	tcatgagtgg	gctcgccaag	420
aaggcgacgt	tgtcttcatc	gtatcacgga	ctatgctcaa	ggcgaattgg	gcgaaattgt	480
ctatgtggac	ttactaccga	aggcgaaacg	ctcgaggctg	atgaggtttt	cggatcgatg	540
aagctgtgaa	gactgtttcc	gacctgatga	tgcctatcgc	cggcgaggat	tggaaagtga	600
ccctgatctg	gaagagcaac	ccgaactcgt	aaacagcatc	cctacgggtg	cggttggatt	660
atcaaggtta	aggctgcaaa	tgctgcgact	tcgacaacct	cctgagtgtc	gccgaatacg	720
aaaaactgat	agctcataaa	tgacgacctt	ggtaagcatc	atcatgggta	gtacttccga	780
tctgcccatt	tggagaaaag	cgccaaaatg	ctcgatgaaa	tgagatttcc	attgagatgt	840
tggcgctttc	ggctcaatcg	actccggctg	aagtagagac	tttgcacacg	aggccagagc	900
tcgcggtatc	aaggtaatta	tcgctgctgc	cgtatggcag	cttcatttgt	gtggcgtaat	960
tgcttccatg	acgtctattc	ggtaataggt	gtacccatca	atgccactct	tgacggaatg	1020
gatgctctgt	agccatcgtt	caaatgcctt	ccgggatccc	cgttgctact	gtggggataa	1080
tgctgccaga	atgcagcact	tttggcc				1107

(2) INFORMATION FOR SEQ ID NO:1239

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2740 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2740

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1239

cgaaaaaggta	gagataaaga	ggccgtgagc	ttccttgggt	aagacttatt	ttcagcacac	60
ccaaagcggg	agtttctgag	aaaagtaccg	gagtatctaa	gagggttttt	tgctgattgg	120
ggggaggaga	tgtttgccctg	tttggcatct	cttccccctc	tccacaatgc	acttatgccg	180
gacagatact	tcggttattc	aatttaggca	tttactacg	accatccctt	aggaatgggc	240
gagcgctgaa	gggtaagaaa	tggtatgaga	gatgctgcct	actcgaagcg	gcgcctatat	300
ctgcctcttc	gatgatactg	acgatgagct	tgccgtccgg	cgtaggtgg	agtcgttcga	360
agcaaaagct	cggccaagag	atcgtggcc	tctctgctgt	cggtgtcttg	ccacaaggga	420
tggcttgata	ctcggctatt	tggtggcaat	cagttcgagc	atttgttcat	gcgatgatct	480
gccatcttcg	gtgtagtatg	gatgacatcc	cgcacgacat	ctgccgcaca	gtctatgatt	540
gtacagggtg	tgccagcagc	gaataggaag	agacaccgag	gggcgacaat	cgaaccgcac	600
agattggagt	tcgtccacag	ctgccttcac	ggcagaacat	ccgacggatt	gaattcgagg	660
agttcgggga	agagaagttg	ttgctgtcga	tatgacgtct	tgattcgtcg	gccatgaaac	720
gatcgtaaa	aataccttgg	gtgcgcgggtg	gaaatcgacc	aaagccaaac	ccctactcag	780
agtatcacca	gataacggcc	gcgatggaca	tagcagagca	tatcggttga	ggggctgcag	840
atacggcaga	gggagtaaaa	tcggctcagg	cgaacagctc	ttcgagcgga	tcgggtgggtc	900
tgccatcttc	tcggcatctc	gcttggcttc	gactgcttga	agagttcgtt	ccagcccata	960
tccggcgatt	gacgccgcga	ctgcggatag	gctccgtcag	tccggtttct	ttgaagggat	1020

tatacgatga	tccagatcta	cgggcggacg	aactacgttt	ttccccgggc	cttgatagca	1080
gggatgtcga	tcagttcttt	gcggtcgaag	tcaatggccg	gtactgcttg	ctggagctga	1140
gtgcttcacg	aatgaccaca	ccgatgagtt	tgaaaaagcc	tgttcgtcgg	agaacttgat	1200
ttcagttttg	gtcgggtgga	tattgcatcg	atctgggagg	gttcaagatc	gaaatacagg	1260
aagtaattgg	gcatgttccc	tgaggaaatga	tcgcctcata	ggcagccatc	acggctttgt	1320
ggagtaagga	tgacgcatga	agcgtccgtt	cacgaagaag	tattgcaggg	cactcgtttg	1380
cgagcaccat	cggggcgccc	tacgaagccg	gatataattg	tatggggctt	ttcatcccga	1440
tgggtatcag	atctttctcc	attctcttcc	gaatacatcg	aggattcttt	tcttcagagg	1500
agaaggaggc	agatccctgc	cagctcacc	gaatggtaga	tagaaaaagc	gacttgcgga	1560
ttgaccaagc	caccgttcg	tattcggtca	ggatgtgccg	aaattccgtt	tcattcgttt	1620
gaggaaat	cgacgtgccg	gtacattgta	gaagagggtc	ttcacaaaag	aatacagccc	1680
agtggagagg	tgacagtagc	cacttcgcct	acttcgagcc	attgatggta	aggcgcgtac	1740
ccaattcatc	ttcagccctt	cgggtaggag	ttccacttgt	gcaacggctg	caatcgaagc	1800
cagggttca	cctgaaaacc	catcgtccga	aggctgaaca	gatcctgaaa	agaagctatc	1860
ttgaagtggc	atgtcgtcgc	aaagccattc	gggcatcgct	ttggctcatg	ccttgccgtt	1920
gtctgtgacg	cgtatcaatt	cgcgaccggc	ctccctgaca	ccagcctgat	aatggaagcg	1980
ccggcatcca	atgcgttttc	caatagctct	tgacgaccga	ggccggacgt	tggattactt	2040
caccggcagc	aatttgatgg	cgatactgtc	cggcaggagg	cgtatgacgt	cgctcataag	2100
atgacctaaa	aaccaaccac	gatagcaaac	aaacggctat	gagcaaagcc	aacgtaggag	2160
tgttcgtccc	gagcgagtgg	attgtgtctc	gccttgacgc	tgctgtcctt	cagatgcttg	2220
gtaccttcca	caaatgttcc	gcgtataacc	gggcataagg	ggagtagtcg	tgtgatgaag	2280
actgtccgtc	cagctctgct	tgccctcctg	ttctacttcg	cgtctaatac	gttcgatacg	2340
tttctccaac	tctcgcgtcg	ctgatcgtaa	tagataggtt	tgtgggtcaa	agaccggggc	2400
tacgctgttt	atagaatgat	cctaatacca	tagtttttct	ctattaaaga	gaatggagtg	2460
aagaaaagat	cgaagaagcc	ttcctctttg	gtgtccgtat	aggtcgggca	atataaggag	2520
agagccggtc	tgtaggatcg	gtagcctctt	gccggctgca	ggtgtcggag	gaatggagtc	2580
ggtctgtagg	gcagcgatgt	caatgagtct	tttctctcct	cttcggccag	agcccgtgta	2640
tgcacgaggg	ctgccaagc	accgctnaag	cgtcgcaaat	cggacagcga	tccgagcacc	2700
tgcaaagacg	gaatccccgc	tggcctgcgg	aaaagatcct			2740

(2) INFORMATION FOR SEQ ID NO:1240

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 881 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...881

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1240

tccaggacgg	atagcccgca	tagctcccaa	ccatgcctct	gtgctgatcc	ggccgaagag	60
cggtaggggc	aaagagttga	tagccgaagc	tctgcacctg	ggagcaaacg	agcctcagcc	120
ccattcgtca	aggtcaat	gggtgggttc	ccgaaagttt	gttcgaaagt	gagctgttcg	180
gacataagaa	aggagcttta	ccaatgcttt	ttccgacagg	aaaggacggt	tcgagctggc	240
tgatgcggca	cgatctttct	ggacgaaata	ggcgaactac	cggtcggcaa	ccaataaaac	300
tgctgcgagt	gctacaggaa	cagacattcg	agccgttggg	cgaagcgtct	cccaccgagt	360
ggacatccgt	gtggtatcgg	ctacgaatgc	ttcttggagc	gaatggtagc	cgaaggacgt	420
ttcagagagg	acctctacta	tgaatcaacc	tgatacatct	gcattctgct	ccgctgcgtg	480

agcgtcagga	gatatacagc	tgctgggtgga	agccttcagt	gaagcctttg	cccaatcgac	540
ggattgcccc	atgccgtttg	gagtgccgaa	gctatgcgac	gtatctgtcc	atgcccctac	600
cgggcaatgt	acgcgaactg	aaaaacgtag	tggagcgacg	ctattgctct	cgggatcgag	660
agaaatcagt	gcccgggatg	tggtctgcttc	ggttcgcagg	tgacggcagc	agaccactcc	720
gacgaacggg	ctttgccgac	atggaggaag	ctgctatccg	agagacgctg	actaaataca	780
acggaacgtt	agtcgtgctg	cacgagcctt	gggattgagc	cggcaagctc	tttccggcga	840
atggagaaat	acggactgtg	atagtgtgta	aaacagaatc	g		881

(2) INFORMATION FOR SEQ ID NO:1241

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 447 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...447

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1241

agcagcatca	cctgctgtcc	gtgctcggtg	atgtctgtga	taaactcacc	gtatcggcat	60
cgtaaacagc	cgtcccgcag	gggacttcta	tgatacgacc	tctccgttcg	ctccgggtact	120
tcgcttggtc	ccgcgcgtct	gtccgttgta	gccatgatat	gacggtcata	gcgcagatgc	180
agcagtgtcc	aataatccga	ttgccacgga	gaaagacatg	tccgccacgg	cctccgtcgc	240
ctccgccggg	ccacctttgg	ggatatactt	ctccctgcgg	aagtgcgtag	agccctccct	300
cccttgcccc	aacggcagta	tatcttgacg	taatcgacga	aatggactct	gctgccatac	360
gatggattta	gtagagact	ttgcggaact	tgccacaatg	ggagcgatac	gcaaagcgat	420
ctcttctatc	gtccccgtac	caccacg				447

(2) INFORMATION FOR SEQ ID NO:1242

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 596 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1242

aggatcccca	gcctcaagcc	caagaaagga	cgcttcctga	gcaaagaaag	cgagccgaag	60
agtgggagag	cggtaaggag	cggttccgag	accttgagct	tggtcgcaca	gtgctgctcg	120
tcggatagag	gatgcttttg	tcggaatgag	tatgcaagtt	gggaaaataa	gaagaaaatc	180
gagcagctgt	tgcaggcttc	tccctttggg	aaacctttga	gagcaagctg	aaagtcaagg	240
cagacagata	aattattgcca	aactgaaaaa	ggaaatnctc	gaagccaaag	aacaccctat	300
cacgacttca	agtcgtggca	gaagttcgag	cgcgaactgc	gcctgtcaag	aatcaggata	360
ttatcacttg	gatgatgtgc	agggatctca	tgaagagaac	aaggtggagg	gattggatac	420
cgggtactctc	tacctgaaag	aattcggacc	gacgtccaag	agcaggggag	cctcaatgtg	480
ctgaaccacg	gaaagccgat	gcgctttgcc	cgtaggtcgtg	tacagaagcc	gacaggccga	540
ggccatgtac	acaaggagga	ggcttcctct	ggcgacggtc	tatatcgaga	aaggga	596

(2) INFORMATION FOR SEQ ID NO:1243

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 710 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...710

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1243

tgatcctcag	atgatcagag	tttgtttccg	tatggcttga	aatgaaaac	aaaaccaggg	60
aaaattatatt	tattccatca	gcgaagtggc	gcggatgtcg	atctgccgga	ttccactctg	120
cgttttttggg	agaaggagtt	tccggcataa	agccacgtac	ttccgaaggc	ggcacacgtc	180
gctatacagc	caaggaatcg	aatgggtgcg	gtctatccac	caccttacca	aggaaaaagg	240
actcaacttg	caggcacgaa	gcaagctctc	aagaacgact	atgatggtag	tacggcaggg	300
aagaagtcac	cagtcgtctg	aaagaaatcc	gtcaggaact	atggatatcc	gtgatgccat	360
cgaccaatgg	gagcggaaaa	atatgtactg	aagaaaaacg	atgctgcgat	ggatcccga	420
ttcgatcttc	ttctgaaagc	cggaaaagca	gcggactctc	tgtaggtatg	aaagacgatg	480
agctcttagc	ctgcttgaga	gttgttcata	cagagtggaa	cggctgaaag	ccgaagagca	540
tatgctatcg	gtggagacaa	gctccaagac	ctgcgaatcg	tgggtgtagt	gagattcgtg	600
ctgagatggg	ggggccttcc	ggcaagcaga	ttctgatgat	actttggcgg	tcggacgcat	660
cttggtctccg	gcccttcttt	tgcttcgaga	atattttacc	cgttaccctg		710

(2) INFORMATION FOR SEQ ID NO:1244

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 712 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...712

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1244

gccgttctac	ggcaaggaag	cgtaagtatg	tcaccagccg	gcatattcag	accgtctgat	60
gcgagaactg	gacaagaatc	tggctctttc	gtgtggagcc	accgataacg	ccgacagctg	120
gctcgtattc	gggcgtggcg	tactgcactt	tccgttctta	tcgagaccat	gcgccgcgag	180
gggtacgaac	ttcaaggggg	cagccccaag	tgatcatcaa	agagatagac	ggcgagcggg	240
gcgaacgata	gagcttcttt	cgatcaatct	gccggaagag	tcctccagtc	gtatatagac	300
atagtgacct	gtcgcaaggg	agagatgggt	atgatggaaa	acagaacgac	cgggtgttta	360
tggagttcca	tatcccttca	cgagggatca	tcgactcaac	aatgccgtac	tgacagcatc	420
ggcaggagag	gccgtaatcg	ccaccgcttc	ttggaattcc	aaccgtggaa	aggggagata	480
gagcggcgca	caacgggtcg	atcattgcgc	tcgaaagcgg	aacggcctat	gcctatgcct	540
gaataatctc	caaaagccgt	ggacgcttct	tcattcttta	cgcaggagag	gtctatgccg	600
gtcaggtcgt	aaggcgagca	cacgaaagga	agggcgactt	ctgcgttcaa	cgtctgcaag	660
agcaaaaagc	ttaccaatat	gcgtgcttcg	gtagccgatg	ataagtgtca	ct	712

(2) INFORMATION FOR SEQ ID NO:1245

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 595 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1245

cctatcgagc	atttgcagaa	tccattgac	aagtatgcat	cgcagcttaa	tctgccgatg	60
ggaaggtggt	cggttcttat	gcccacagcg	gtgacaatgg	atatatacca	gatacaacga	120
gatttcaccc	gatctgatca	aggctctatc	gctacggagg	atgtccgctt	ccgtaagcat	180
tcgggaatag	acagcaagggt	ctgttccgag	ccgtgggtcaa	acgcgggtatc	ctcaatcaaa	240
aaagcgtgga	gggggtagta	ccattaccca	gcaactggcc	aaactccttt	attcccgcgc	300
acggagacca	aactcggacg	cctcttccaa	aaaccgatcg	agtggttatc	gccgtgaagc	360
tggagcgttt	ttatacgaag	gaagagatca	tcccatgtat	ctcaactact	tcgacttcct	420
gtacaatgcc	gttgggatca	atctgcggct	ttatacctac	ttcggtaaag	cagccggctg	480
atttgaagat	gaggaggcag	ccgttctggg	cggtatgtgc	aagaatccgg	cctattatat	540
cccggtttgc	atggggggaga	cagaacgttg	ccgaggacgc	cgcaatatgt	tctgg	595

(2) INFORMATION FOR SEQ ID NO:1246

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 622 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...622
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1246

```
cggagcatcg tggtagtcg tgttggtggc gtatgccagg gcagggtgggc tgtagtactt      60
ccggccaaca ttcccatcag cgtaagataa ttgatcttta tcctttgcaa gcgataaatc      120
cgatgataag gagaggcagg aggggtgatat aaaaccgtat ccgatccatg taaaaccacc      180
tttgtttact atcgtacgac gaacccctct ccggccccc aacctacgca agccaagaat      240
atgggtatgcc gatttctctc aacatcaaat tggcactggg agtcgtataa gtcacagctt      300
ataccgataa ccgaaccgac tcaatagaat agccaccacc aatggccacc agcaagtccc      360
agcttgacgg gctgaggaat accgggcaaa acatcggaag cgaacccaaa aggataccga      420
gaccgatgcc gatgaatatg gcattagggt cggttcgttc agtcgtttga caagaattac      480
cgatcagttc tccactttgg gcattactaa ctactgccc actacagtca gacgatcgcc      540
acctgtagcg gaaggaagcc aatgctacca tctcaacttc ggcacgggtca cacgtgtcac      600
attcatgcca tgcattttgc gt                                     622
```

(2) INFORMATION FOR SEQ ID NO:1247

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 542 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...542
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1247

```
ggaaaattct tccgattctc gaccctgaaa atagatTTTT tggaaagctt tgaataatat      60
gtctcaacct atcaatgact tataaagggt cggttgggat acccttagtt agaagggtgg      120
agacaactcc cattttttag ccaaatcgat acaaattgtt ggaataacct tagttagaag      180
```

ggtggagaca	actacacatc	tttagtaatt	tcttttagtaa	tgttgggaat	acccttagtt	240
agaaggtgga	gacaacgttg	tcccaagcct	gaacggtagc	gttgtcgttg	ggaaaccctt	300
agttagaagg	gtggagacaa	caaacgcac	gttataagtt	ttttgattgc	gttgggaata	360
cccttagtta	gaaggggtgga	gacaacgttg	tccaagcctg	aacggtagcg	ttgtcgttgg	420
gaataccctt	agttagaagg	gggagacaac	aaacgcacg	ttataagttg	ctgtgattgc	480
gttgggaata	ccttagtttag	aaggggtggag	acaacacctt	tgcttgacac	tcctcaggac	540
ag						542

(2) INFORMATION FOR SEQ ID NO:1248

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1248

cgctcttcta	taaaatgcgt	gatgtccatt	cctttcagat	tctgttcttc	ccgatacggg	60
acaaacgctc	cacctcgca	tccagacgat	gaccgatcgc	tccagcagga	tatgcgtatc	120
ggacatattg	cgcggatgct	gtccgacgag	gtaatttcgt	cgaagatgcc	atccacattg	180
gtcagattga	aattgcgcaa	atggacaagc	acttggcacg	ccagttgctg	cggcgatatca	240
tcggaggacg	aaagtcagac	cgctctttcc	ggtagtgctg	tagcgcaagt	gtccatgtag	300
cactctccgg	catacgggat	ctgagaggca	gcaaattcgg	catgcccagc	tcttctcgag	360
aataagcctg	aaaatccttg	tgtaccgagt	cgatatctcc	gagatggcat	ttgccccaaag	420
tgctctttct	ctgaagaggt	atcttctccg	ggacggctgt	tgagcttcac	cacagcgagc	480
ccggcacctt	ctgacctcga	ttgtgctgct	tctccatcag	gaggtatagc	ttgntcangc	540
atacatccat	gtgccatact	tatcg				565

(2) INFORMATION FOR SEQ ID NO:1249

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1249

```
ggatctttca accccatctg tatagtcgta cggcagactt ttatcaggat ttgccagaag      60
cctttccatg ttggatgagg tggttttatt ggacattttc cggcacgaga actccctttg      120
ccagggtgtga ccagtcgtct gatattgatt tgatcgagaa tcccaataaa acgctgggtga      180
gcaaaaacga tctgctgatt atttacacgg caacgagata cccgatgtcg tattgatact      240
cggagcggcg atatcgatcg gttagtattt cctgncaaac aatatctcca aacttatgct      300
aaagaagggt ctttatatac tggggttctt tcttgtaact gccatcttgt tgcagccata      360
gttttctttt cggactattc cgatagcact cgtgctcagg tttggaagtt cgagtcgagg      420
gtaagacgaa acatgcattc agcaaaagac cgatgtggag cgagacttga agcgtctggg      480
tttcaccccc atggcaagct gctcgactct atcgatcttc acagaatgga aagaaacctc      540
gtgctaattc ccttttccgc ggagcggaat tgtatgcctc tccatccgcc aactgtatct      600
gacagtggaa caaaaagatc cgctctttat ggtagtagat ccgatacctc tttctatggt      660
tctaccgaca ggagcgtgat cgttccaact tgcagtatgc tgcccccgta ctgatggcct      720
caggggatat atctcgtcct tagctaccgg ccctctcttc gacctcattg catttatcaa      780
gcgagatcca ttctggncaa actttttcgc tcaaggttat gtgcccgat  aatgncagaa      840
catattaagt tccccgtctg ggcnaaactg ga                                872
```

(2) INFORMATION FOR SEQ ID NO:1250

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 544 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1250

```
agatcatacc ggatataaat gccgttggat gtggcctaaa gttcgctatg cttcggttta      60
catggtgaaa attcttacct gaaagtgccg actaaagggg tgtatatcaa ggataccata      120
tcgtaggtgc tgtattcggg ataggaaccc gctcaatgac agacgttcgt tcgtaaattg      180
ctctcttgaa tatgacgatt gatcccgaag gagggtatga tcaaagaaaa tgctctgaaa      240
ttgacttcgg cctcacgttc aacgagtcac ggtttaaaaa gctgaaactg aactacagaa      300
ggaaaaaatgt tgaacattaa aagaataaag aagaaaaatga atgaagaaat ttgtttgcaa      360
cggcagcact gctttttacc gcaagcacag ccttgctcag accggagtcc aaacaaatac      420
cccattcggg agtggagaag aagcatccgt tgccgtcaaa acataagtct ctttacctct      480
tatgcgaaaa gggttaattac aaggatgcct atgatttttg ggagaaagcc tatgaggagg      540
cccc
```

(2) INFORMATION FOR SEQ ID NO:1251

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1553 base pairs
(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1553

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1251

ggtgccaaacc	tcccacagag	attgaagacg	gcactatcat	aggaggcttg	cacaccatca	60
ggtattgagc	atcgccgaca	aagtagtgga	ggctgtcaca	gtggagcgat	ccgcaagttt	120
gtagtgatga	gcggttggtga	cggccggaga	gtgggcgcaa	ttattacacg	gagtttgccg	180
aagctcttcc	cttccgtacg	gttatcctta	catcgggatg	cgccaagttc	cgatacaaca	240
aattgagctt	ggcgacattg	ggggcatccc	tcgcgttctc	gatgccggac	agtgaatgac	300
agttattcgc	tggcggtaat	tgccctgaag	ctgaaagaag	taagggattg	gatgacatca	360
acaaactacc	gatcgtctac	aacattgcat	ggacgaacag	aaagctgtca	tcgtcctgct	420
cgctctactc	agcctcggtg	taagaacatc	catgtaggcc	ctaccctacc	tgcattccta	480
tcaccgaatg	agcgaagtg	ctgatcgaaa	acttcgggtat	agcaggtatc	ggtacgggtca	540
agaagatatt	cggacgctga	tcgcataaga	ataagaagtg	gtgtgcaatg	aataaccttaa	600
gctttctcgg	aaaagccgga	actgcattgg	tttattctcc	atcttcttga	ggtatagaca	660
caaaagtatt	aaatactctg	tgaaaacttt	gtaagctttt	cacagagtac	ttagaacccat	720
ttcgatgaat	agttaaacta	tttcgcggaa	agcttaagag	cttttgccag	aatagatcct	780
aatcttcttc	gaaaagtggc	taatcaaacg	tgagttcgat	gtaagcgata	tgggcccact	840
ctctcttggt	gggatattga	ctataatcga	atcagaaaaat	gaagggaata	agtttgacgt	900
ctcatcggtg	gtcgaagcct	ctcgaagctg	aatttctcaa	ccgagaaatg	aaatacgtg	960
acaaacagca	tattgcatat	ttcttcagat	cgaatccgca	ttgttttata	gccattcgga	1020
acatacgcca	aaggggggtcg	agctacgccc	tacagcgact	cgggctacgc	cgtagagcta	1080
ccgagctgcg	ctctacggct	cttcaagcta	cgtgttaggg	ctcaccggcc	gggccctacg	1140
gctcagctcg	gccacatcta	cggctcacgg	agcggactct	acggctcggc	tcgctacgct	1200
gtagagcgta	cctcgccgag	ctctaagcgt	agctcgaaga	gccgtatggg	atagcccgtt	1260
atcctctacg	gaatccgcca	tctgccttgt	ggtatagccc	atcttccggt	gcggactgca	1320
acatcgtgta	aaagcaatcc	gaatttcaat	gttggtccga	tccgggcaga	agaggattgc	1380
cccctataca	attgcctgaa	cggacaacc	tataactccc	agatcttagt	gtgtaaccgg	1440
ctaactgggg	aacgaatata	ttggcgtttc	tacgccgaac	tgacgttaat	caatgncgca	1500
agggacatca	gcaaaaaata	accccgaagg	ttttgctgaa	ctttcgggat	ctc	1553

(2) INFORMATION FOR SEQ ID NO:1252

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1618 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1618

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1252

```
gccgtcagtg atattgattt ttccatccct tcagggcaaa cctatgcgcg gtcggaactt      60
ccggaggggg taagaccact atagcccgcg tcatacctgc ttttgggacg ctaccaaggg      120
ccatatacgt atcgggtggag tggatgtagg gatatggcaa aagaagagct gatggacagg      180
atctctttcg tctttcgaat accaaacttt tcagaaccac cattcgtgag aatattacct      240
atggcgctccg gatgcatccg aggatgcttt ggctcgtgcc atcgaccttt ctcaagccgt      300
gaaattatag agcgtttgcc cgatggactg caaacgaaga tagagccgat ggacagtatc      360
tctccggagg ggagcagcag cgcatagctt tgctcgtgcc atactcaagg atgctcctat      420
tgtggtgctc gatgaagcca cgcctttgct gatcccgaac acgagaaatt gatacagcag      480
gctttgcacg actgacgaaa ggaaagacgg tgctgatgat tgctcatcga ctgacgagct      540
acagcatgtg gatcgtatcc ttgtgataga gaagggacga atcgcagaca ggggtaccac      600
gaagaactcc tgacacaagg tggctctttac aaatccagtg ggaggaatac cagcgatccg      660
tttcttggac attatgaaag aagaaaacac acaattacct ctaatcgaaa cgaaacaaac      720
ctatgatacg atattccaac accgattcgc tctctctcgt aagggtgcgc aggatcttgc      780
caaagcattg catggactac ggttttgaat gtcggattta tgttgccctgc catttcactt      840
ttcttttcct cgaagactat ctgcaaggat ccgccacaca tgtatttggg attatatagc      900
catgggagcg gcttttatgg cggtgctctt cttatagctc tcttccaata cacaagcctg      960
tacaccaaga tatatacaga agtgccaacc gncgcacgc cttggctgaa aaactacgca     1020
aactcccatg gctttcttcg gagagaagaa tctgtccgat ctgacttcca cgatgatgag     1080
gatagtacgg tgatggagac tgtcttctct cacagtatac cccagctttt gcacgtttgg     1140
tcagtctctt tttgatcggt atagggtctt tctgcttaac tggcagcttt cgttggcact     1200
cttttgggtt gtgcctgtag cagcctagca attgtctttt ccaaaaagat gttgaacaaa     1260
tcattccact cgaataccat gtcaaacgag aggtcaccca gcatatacag gaaggaatcg     1320
aaggatacag gagataaaat catataatgg cgaagaagaa tttgccgagc gctcgatgcc     1380
aaactccatg cctatgagaa gagccttatt cgatgtgaac tgttgctcgtt gccgtcctta     1440
atgcttcaca tataatcctc aaactgggac tgcctctgta atcataatgg gagcttatct     1500
cttgtcagaa ggaacaatta tctattcact tatttagtct ttctgcttat tcggatcgac     1560
atatataacc catagtgaag tattcagcaa ttgctactct gcagtacctc gatgtacg     1618
```

(2) INFORMATION FOR SEQ ID NO:1253

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 512 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1253

```
atctcatcaa tcaaaacata gtatttcctg cccatatctt ttgtttgctc atgatatagt      60
cgtataggag attgggatta cgatacttga tatccgattt ctatcaagag ctacctccac      120
gaaatcttct ttttgagctc cttcctcatc aatcgattct taaagagagt gaagagtagg      180
```

aatgactttc	ctgaactctt	aatcccgtaa	caatcttcac	cttaccattc	catcgctttg	240
cgaatactgt	gcaatgtatt	catttctgtc	tattatcata	aataaggctt	cttgtgattt	300
ctctgaaatt	ttagtcgtgt	attacaactg	ttttgtcagt	gcaagatatt	tttttgcttc	360
gaactaacia	aaaaaataga	ggaacaaatc	tatacgatgc	ttttgatgta	gccgaggatt	420
ttgcgaatac	atttcaaaac	actttgaggt	ggggaagaaa	cggaaaatta	ccgtctttca	480
aaatcgggaa	cggcggttatt	ttccggtaga	ag			512

(2) INFORMATION FOR SEQ ID NO:1254

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 478 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...478

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1254

gcgaaagtaa	ccattgccaa	ggtgaaaccg	atagccgtgg	atattgcatg	acgaagctct	60
ggagcagggt	ataatccttc	tggataacca	aaatagccca	ccgagcacac	agcagttcgt	120
cgtaatcaag	ggcaagaata	cacccaggcc	tgatagaggg	gaggagatac	tttcttgagt	180
atgatctcca	ccatctcacc	aaggcggcaa	tgacccaaat	aaatgcaatg	gtctgcataa	240
agcccatccg	aaacgatcca	aaacgaactt	ctgaatcagg	aaggtaacca	aggtgccagt	300
gccaatacga	atgtcacggc	tgaccccata	ccgattgagg	tgttaccttc	ttcgatacgc	360
ctaagaatgg	gcatataccg	aggaactgcg	acgcacgacg	ttattaacga	aaaccggcgc	420
tatgaataac	atgaaaaatt	cataatgatg	ccaattactt	aaagtgagtt	atgctttt	478

(2) INFORMATION FOR SEQ ID NO:1255

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 585 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...585

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1255

ctgaagaatt	gtaccatgtc	tgccacnttt	ccgttggatg	ttcgtctcga	acaaaagcca	60
gattcacttt	cttcttcggc	ccgtctaaat	acaatatgta	cgcgcttacg	acaaagggat	120
gaaagccgag	gacaacctcg	atctcgacac	ttgggtctact	tgggtgccag	tatcttccga	180
tggatcaatc	gttatagatc	attccggcct	ccacattcct	gcagcagtat	tttagcaact	240
gggggtgata	attcttttgc	tcacgctggg	gatcaaaactc	ctcatctctc	ctctgcttac	300
aaggggtatc	tctcctctgc	caaaatgcga	ttgctacggc	cgcggtacaa	gagatcaatg	360
ccaagtaccc	gggcanggat	caggaatcca	tgtgaagcgg	cagtctgcta	ccatgaatct	420
ctatcgtagc	gccggtgcag	gccgatgagt	gggtgcttgc	ctatgctctt	ngcagttccc	480
tttcctcata	ccatgtacat	gtatttcctt	acgactatcg	acattcgtag	cagagtttct	540
ctgggcggaa	gacctctcct	ctatgatgct	ggtttcagct	ggacg		585

(2) INFORMATION FOR SEQ ID NO:1256

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1050 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1050

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1256

cctatataga	gatagagacc	ttctcttttt	tcaaaggtct	ccttaaagtt	aatgatccgc	60
cgagcaattg	cacttggaac	cggaatgtgc	aagtatcttc	attcatttgt	attgcggtac	120
gaatacatta	cctttgcgcg	caaaaataaa	cccccatcaa	ccagaaggat	gaaaaactta	180
gtcatcgtag	agtctcggca	aaagccaaaa	cgataggacg	tttcctcggg	tcggattata	240
cagtatctcg	agttacggac	acatccgcga	cctcaagccc	aataaattca	gtgtgatata	300
caaaacaact	acgagccgga	atacgagatc	cctgccgata	aactccggta	gtcaaggaac	360
tgaaatccca	agccgaccga	tcggattttca	tcggctggct	tccgatgagg	atcgcggaag	420
agaggccatc	gcatggcatt	ttacgaagca	ttagggctga	aaaacaaaaca	gaccaagcga	480
attgtatttc	cgaaatcacc	gagacagcca	tcagagctgc	tatcgaaaat	ccacgagatt	540
agacatcaat	ctggtcgatg	cccaacaggc	gaggcgcgtc	ctcgaccgat	cgtcggcttc	600
gaactttctc	ccgttttatg	gagacgtatt	cgtcctttct	ttcggcaggg	cgtgtacagt	660
ccgttgcaat	gcgtcttctc	gttgaggaga	gcgtgagata	aatgctttcg	tgccggaagc	720
atccttccgc	tgtacataga	gttcgtcctt	cccgacggta	gaatgctgac	ggcgggaattg	780
cagaacgatt	caagacgaag	gaggaagccc	gatattttct	ggagcaatgt	atgatgcca	840
ctttcatata	acagacgtta	cgaagcgtcc	gggcaaacgt	tcccggccac	tccttttact	900
acctcgacgc	tccagcagga	agcagcccga	aactcggcta	cgggtgtggca	cagaccatgc	960
gtatcgctca	gaagttgtac	aagaaggctt	atcacctatt	gcgtacagac	tctgtgaatc	1020
tgtcgggatag	gcncctcgtg	actcaaaaga				1050

(2) INFORMATION FOR SEQ ID NO:1257

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1167 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1167

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1257

ctccacgccg	ttgtacatga	tggggtcgat	gcgcgtcata	ccgatattcg	catcacgcga	60
agatgagtca	gatattcctg	tccgaacgtc	atccaaaacg	agcgcgcttg	atcgtcggga	120
aattcttcac	gagtgaattc	agttcctatg	atagaggaga	taggactcgc	gctcaccgat	180
actcggatag	gtcagctctt	gtgtatttcc	tgcggttcgg	tctctatcca	acggccgttc	240
tcccatactt	acccttctga	gtgatctcac	ggatgttgat	ttcgggattg	aagtcgtggc	300
aaacgccttg	tgggtggtcgc	caccattgca	gtccacaata	tcggataatg	aatctcatcg	360
aaatgatgct	tggccgcata	agccgtatat	acctcgtcac	acccggatcg	aagccgcaac	420
ccaggatagc	agtcaggccg	gcttgcgaaa	acgatcctga	taagcccact	gccaaactgta	480
ttcatacttg	cttcgtcgag	aggctcgtag	ttggccgtat	cgagatagtt	cacccacac	540
gcagacaggc	atccatgatc	gtcagatcct	gatagggaag	tgctacgtga	tcaccaattc	600
cggtttgaaa	ctctcgaaca	gagccaccag	ttcttcccat	tgctggcatc	gacctgagcg	660
gtttggatcc	ggacgttttt	gatttcgacg	caatcttgtc	gcacttgctt	ctcgtgcggc	720
tggctaacat	gatctcgtga	atacatcggg	gttcatagcc	accttcttgg	ccacaacggg	780
acctcaccgc	cggccccgat	aatgaggact	ttacccattt	ttatatgatt	cttgtatgat	840
tattactcgc	ctgtagcgca	aagataaaga	gaacaggcca	acaatcggca	aaaagattcc	900
gcccccaact	acccggcccc	cctaaagcgt	aagatgcata	tcatgcagga	tcggcctacg	960
caccaaaatc	ttctttacatg	cacgccataa	aacgtgggtc	gtaaactttt	ttgttttggt	1020
tcgggaagta	aaaattctcg	cgccacaacg	aaaaagtctt	cgcaccactt	cgttcagaaa	1080
cacgcgccac	aatcagatca	tttgcggttc	gtatttccga	caaaactatc	cggactaaaa	1140
ggaagttaag	tagtcatgtt	acacggc				1167

(2) INFORMATION FOR SEQ ID NO:1258

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 453 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1258

gtgaagagcc	gagcgaagaa	gatgaagcag	ttcagactga	agaaaaatctt	tatgccaaag	60
tgctaaaatg	attttataag	agagagagga	tattcatctg	gcagtacttt	tgactaatg	120
gggaattacc	aacagatgta	attgcatttg	tggtgacaaa	aaaagaaaac	gacatgagga	180
agttatTTTT	aatagctgct	tagaaatggt	tatgttcggc	tgtctcctat	tctcaaaagt	240
aactcaacga	taataatatg	agtttggggc	aaatacacga	actgcaagtg	catatTTTTc	300
gcaaattcca	aaggatttgc	tggaaaatat	ggataaaatg	ggctggacaa	ttcgtcaata	360
ctcaatgaat	atgaggggag	atattttaat	ttattttcaa	tatagaccct	caggttttta	420
atcttgtcgg	gaaaaaagtc	gcttttgggg	aag			453

(2) INFORMATION FOR SEQ ID NO:1259

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1008 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1008

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1259

ctacgatgct	cggcgccacc	ctgctaaagg	cctataaact	ctacaaggag	gcggaataga	60
aatTTTcaga	gaacacatga	ccgtgctcct	cgtgggcata	ttgtggcctt	catcgtagca	120
ctggccgcga	tcaagttctt	tatcggatcc	tcacccgata	tggcttcaag	gcattcggct	180
attatcgat	cttggtggcg	gtctgcttat	cgtattgatg	ctctcagggg	tatccttagc	240
tgtctaatacg	gaaaaatgaa	acaaataaat	cgtccgctcc	acctgcgcga	gggaaagtac	300
tatacttcga	caaacctctc	acatggactt	cgttcgactt	ggtaataaat	tccgctatcg	360
ggcttgctgt	cggatgggta	tcaagaagtt	gccgtagggc	atgccggcac	attggatcca	420
ttggcatcgg	gcgtgatgat	ctgtgcacgg	gacgtgccac	gaagcaaatc	gatgtgctgc	480
aggccggcac	aaagagtaca	ttgccgccat	cagactgggt	gctacgacac	cgagtttcgc	540
aaggaaacgg	aaccggatgc	tttcttcccg	tacgaacata	tcacgcgcaa	tcgatcctgg	600
acatactacc	tcgatttcacg	ggaacgatag	aacagggtccg	cccatattct	ctgctgttcg	660
cgtgaacggg	aaacgcgcac	acgattggct	cgaaggggga	aagagggtgga	gatgaaaacc	720
cgtacgttgc	agatcacgag	atcgaactac	tggagtatgc	cctacccctc	atcacgctac	780
ggatgtatgc	agcaaaggca	cttatatacg	tgctctggct	cgtgacattg	ccaagccctc	840
gaatcgggag	gacatttggga	ggcattgcgc	aggacaagag	tagcaatgcg	cgtatcgaag	900
actgcctttc	gatggatgag	ttggaacaat	gttcgaccgt	cttggttttg	cttatgaacc	960
ggagttcgaa	caaaaagagg	caatccgtct	tccacaccta	caaataaa		1008

(2) INFORMATION FOR SEQ ID NO:1260

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 699 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...699

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1260

taaaaatgatg	atgacagact	gttttttcgcc	ggctgcagtg	gctccaaagc	ttaccgtcac	60
tcacttttctg	tggaatgatg	actttctcaat	cggttttcaat	tcgatggggg	taggttggat	120
ctaccctcta	ttcgaagggt	acacacactt	cttgtcgaag	taaaacatct	tgcctccagt	180
tggatctacc	ctctatcgaa	gggtacacac	aaccatagac	gtaaggcata	cccgtttcga	240
tctgtggatc	taccctctat	tcgaagggtg	cacacaacat	aagactatat	cttaataacc	300
aaattctggt	ggatctaccc	tctattcgaa	gggtacacac	aaccaagggt	cgggttcttg	360
accttacctc	cagttggatc	taccctctat	tcaagggtac	acacaactat	aaaggtttgt	420
tcaaggaatg	tgctaccgtt	gatctaccct	ctattcgaag	ggtacacaca	acgatgcgga	480
caacgtccct	tactccgtct	tgttggatct	accctctatt	cgaagggtac	acacaacagc	540
gattagctcg	tccgccgaca	cgtcttggtg	gatctaccct	ctattcgagg	gtacacacaa	600
catgattctt	gattgggtggc	ttgggcggtg	gaaatgtcag	tagtgtgggg	attcttcctc	660
gttgggggctt	tttcgctaaa	tttgcagcgg	acgagggtgc			699

(2) INFORMATION FOR SEQ ID NO:1261

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 964 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...964

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1261

cgtcagggt	gtttcgggtg	agtatcggac	atgtcaagag	acgtatttga	ggtaggaggt	60
atgtgcttga	gccggcgaa	gagcagtagc	ggcagcaagc	gaagatgacg	aaagcgagga	120
tattgggtcca	agcatatttc	agggaaatcc	atcaagggca	cttgtcacat	aagagagata	180
gtagtgcttc	aacggaatag	cgcgctggcg	gactgcatga	cagtcggcat	accgagagcg	240
ggaaagaggc	tccgcatatg	gagaaagaga	taatgcccc	taggggaagc	aagcaagtcc	300
caatctcatc	gtcgggagg	tgacgaacat	cagtacgcca	aaacctgaca	agcgaggatg	360
aagagataca	tgactatcag	catcggcaag	aaccgccatt	gatcgggtag	gagaggaagc	420
catacagata	tacgtctata	aggtgccgat	gagcatgaat	gccacgggtt	ggggtagcag	480
cttgcccaaa	gggcgatgga	catactgccg	cggccgtct	ccatccattc	tcgagctgtg	540
atctcttgat	ctccatggct	atgctacaca	ctgtgacat	gaagatgaca	gacccagtac	600
gccgggtatc	atgatattgc	tcaggtagat	ggagtagtga	gdcacggatt	gcctatgggg	660

tgcgtgtcga taacgatcgg ctgtagcagt ccatggcctg gctttcgggtg gctcctcggg	720
cataaagttg cgaacagcgg ctgcaccggc taccagttcg ctgatcatct tgtttgtccct	780
gaagggagcg agccaccac catataggca tagttggtat agaaggagag cttggcttgc	840
ttctgtgcgt aggcattccc tgtcattccc tcgggtatat agagtaaccg tatactctgc	900
ctcgctgact gccagccgag ctttacgcac gtttcgaact gttgaccatt tgggttgctt	960
ccat	964

(2) INFORMATION FOR SEQ ID NO:1262

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1173 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1173

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1262

gggggtattcg tcaatccggt ggtctctccg gcggtagctc cgtcgacact tattcgcttt	60
tcactcatgg ctacgcatac gaaggagcaa ctcgacttgc catcgaaaag ctgcataagg	120
tattcaagca gaacgggtgtc ctgtaaggta attaatgata acagcgtgtt gcggacacgc	180
tcctttggag gaggatgtaa tgaatacaac gataatagga gtagcaggcg gaagtgttc	240
cggcagagta cattgggtgaa aaagctctgt gaggctttcg tcgaagaaga tgtgtgtac	300
tctgtcacga ttactattac aaggccaatg accacctctc cctgaggaaa gaaagaagct	360
gaactacgac catcccaatg ctttcgacac ggtatgttcg tcagggatat tctctctctg	420
aaggcaggca aaacgataga ggtccggtct attctttcgt agagcacaat cgtttgcaag	480
aaaaagtaac gttcgtcctg ccaaagtgat cgtactggat ggaatcctga tattcgagac	540
aaagagctgc gggatctgat gaatgtgaaa gtattcgtcg ataccgatcg gatattcgat	600
tggcgcgccg ccttgtgcgc gatgtccagg aacggggcgc aatatggatt cggatttggc	660
acaatacttc agtacggttc ggcctagcac gaggattttg tggaaccatc caagcggtag	720
gccgatctga tcattcggaa ggtggattca attcgggtggc gctctcactc cttgtcgaaa	780
aaatcgatcg gtgattcgta aggaagaata acagccggat actccgatct ttcctcaaaa	840
ccaaaacctt aatgcgatta aaaccaaggc tttctttcca aacagcattc ctgtattgtg	900
gtggatagct gccatcgat ctgccattac gaagctgtc cgcacaggca caataactat	960
accatattcc gtcctcttt tatcatttct cccgacatca gtcgctctat tcggcctatc	1020
cggcagagct cacgatgttt ttctctacgg ccctgtcttc tctatccttt tcgccccttt	1080
gcccttttgc cttctttcat agggatgctg ctgtggctgt gcttttcgtt gccggatgcc	1140
tttgggctgt cagccaatta cccacgagcg aaa	1173

(2) INFORMATION FOR SEQ ID NO:1263

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1426 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1426

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1263

cccgtagcgt	acgcatcgtg	atatagcggc	cataggggtt	ttgcagaccc	gaaaatgttt	60
tcttcgagcg	tcctgtccca	cagttgtaag	gcaaaggccg	tgttacgtcg	ccatacttct	120
ctcgagcttc	ctctaccctt	gtacgataat	gttataggca	gcataaaggg	gatagagacc	180
gctcttgag	ttgatcccaa	aatgatgctt	ttgggggtgga	atacctcatt	cgttataccc	240
tgatgtcgat	gtagcggaggc	aatgcaatgg	gagtagagaa	gtcttcgctc	ataagcagta	300
gccacctatg	ctgtccccga	gatgcatgtt	caccacacgc	caagagtcag	tactgtttct	360
ttgtcggggg	tgcggaaagt	agagaagata	gagcaatacg	ccctatacgc	tcctcgatgg	420
tgaacttata	cgccatacga	gcatctcacg	gatgcgcttc	cccgcctcac	gaaatatgtc	480
ggggtcgtag	aacgcttgaa	gcgacgaaa	accgccttgg	taacgcccg	aggcataaat	540
cctgccaaaga	ctgctcatcg	acgagattgg	caaaattgtc	aatggtcact	ccttatcctc	600
atccttcatt	tcagccccat	agagcatcag	aggcatggga	tgatgatgcc	tcggaggata	660
gaaatagcct	ctcggcggtg	gtcgccttgg	ctttcagttc	gtccagtcgt	ttttctctt	720
cgggtgttag	gccttctttt	tcctcttctc	cagtcgctct	ttctcctcgt	attgctcatg	780
gggtggacct	ggtgattgat	atctatgtca	cgggactttg	ccatcgctt	ggtttgccaa	840
tgataccttt	gagttcgtcg	aagtcgtgca	gctctacctc	ggaagtttga	gtagctcgtc	900
attatagagt	gccccattct	caaagccatc	cgcaccactt	tttctatttg	tgcgcgcttg	960
agctgtccga	gcatcgtatt	acatcgtaag	gcttcatccg	gctgccttct	atagagatga	1020
tgggacagag	ttgagaaaat	cccccaacag	cttgcgatca	ctctcgctct	gtttgcctct	1080
ttgtatgata	ccttggcagc	ctcggcaagg	acacggaggg	tgcggtcgga	gcaaagtcga	1140
aggcataaca	ctctgtcttc	atgtacccat	tgtgggataa	ggcgtttgta	cgcggaagat	1200
agtttgcata	tagccggatg	cggagtacta	tatgaaccgg	ccatcatgaa	gacgccggtc	1260
caaggcttaa	tgctacaccg	gtagtcagtc	gtccgcatga	gagggtgatt	gtataagtct	1320
catcgggtct	ttgccgatgg	cttgattgac	taactcaagg	gcatctctgc	ttcctcctcc	1380
tcacatcttc	cgtcccccg	ccacattggc	caccttaaag	aaccga		1426

(2) INFORMATION FOR SEQ ID NO:1264

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2670 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2670

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1264

gtggaggatt	tgttgtctta	tataggaagt	atcagctatc	cgaacagcaa	gcgaagcatc	60
tggtcgggat	ggcgcagatg	ctttgctctg	atthttggaga	gtggtaccgg	acgaggtgtc	120
ggaactaacc	aaactgcccc	gcgtaggcgt	aagacagcca	acgtgatagc	ctccgtcgtc	180
tacggcaaac	cggccaggcc	gtagatacgc	acgtattcag	agtatcagaa	aggataggcc	240
tgaccccggt	tcgaagtctc	cgttagagac	ggagcagagag	ctggttcgct	atatccggat	300
gtgctgatac	cgaagctca	tcactggctg	atcctgcatg	gacgtacgtt	tgtctggctc	360
gcaagcccaa	atgtgcagac	tgtggcatag	cacattctgc	cgctactact	cgaaggtttt	420
taagaagaac	agtacagccc	tccgaaaaaa	ggggaatgat	aaggcctgtt	gtgcaaataa	480
tatccgcaca	atgtccata	ccttaattcc	ggaggcaata	tgaatcgaga	aagctttttc	540
tcctgcttgg	tctcttattt	gctctcccgc	tccatctgca	aagcatcgct	ccatgcaaca	600
acatggcaga	tacgacttgt	atatccgatt	cggccaaatg	tttctctctg	ccatcggtgt	660
ttaccatgta	aaaccgatga	aaaacaattg	cggcattccc	tgcctcttgt	agctgcttct	720
ctccttactt	tcaactggat	gacaatatcc	gagagcttcg	ctttaccggg	gccgggagct	780
ttcaaccaag	atagacaacg	tcagtcagct	cgttcctctt	atggcacagc	tttgatgagg	840
ggattcgggt	ataagggacg	cagcaaatca	tggggaaaaa	tgttgtgtcg	gatgccttgg	900
gtatggcact	tatgggtgga	atggccaatg	cggaaaaatat	tcgttcggac	ggttgcgtcc	960
ggatggaaact	gctgccaatt	atacccatca	ggacatacgg	caacagcttt	cgctgcgcc	1020
acacttttta	tctcgaatac	ggctcccga	gcccttggtg	tagcgcggca	ggctatacgt	1080
agcctccctt	acggggatca	gccgtatcgt	gaacaatcgg	cattgggcag	cgatgtgctt	1140
tgcggagctg	ccgtagggat	attggctcga	gaattagcta	ttggatcagc	gatctgatct	1200
tccgcgatcc	tacgggctac	aactaaagct	gaccaagaaa	caggaaggaa	ctctggagag	1260
catggtcatt	tctcttctac	cgggaataga	tacatcaacc	ggcagatgga	ctttgaaggc	1320
aagcagtaga	acgtaccgac	gctttcggca	tgaacctgaa	gacgaccttc	aaccgagctt	1380
tgctcgtctg	gtacgaatcg	gatcgcaatt	cagcgtttcg	aagagaagca	gaaagtcctt	1440
acgcgagaaa	ggccggcaaa	agttttcgtg	ctccggcgat	ctcactcgga	ctttctgccg	1500
gtgtagaatg	gcatccatgc	agagagcatc	cgtctgggca	gagatcctgc	cctcaatact	1560
gtttcgtaa	actttacca	tgcccaagac	gagccggacg	aaatgtcttc	gaaatgaacc	1620
gacgctcgag	ttttcaaccg	gcgttccaag	tgggagtagc	atacaggtat	ccgatcacat	1680
gggtatagaa	gctcatgcag	ggatcagct	tggcgggcag	tataccatct	tatggaggaa	1740
acatccactt	ggtcgatcat	caaaagagag	ctaccgtacc	ttaccgggga	tttgagtttg	1800
cagtcggact	acattctatc	ctttccgctg	acgatcgagt	ggaaatggct	gtacagagtt	1860
caaagcgggtg	agcacatcgg	gcacctcgcg	caagcgaacg	atcctctttc	cccggactga	1920
cgaatctcgc	accgacgtgt	gtgcgctgcg	atataattcca	caacatgcca	aagacttcgc	1980
tctgatagta	agggctgtct	ttccttgcca	ccagatggaa	actcatctgg	tccccacgca	2040
atacgatctt	ctctatacga	gcgaacggcc	gaggcgctcg	aggcgaggta	cccgtatcaa	2100
ctcctctcct	ccggcggaat	tttaccgaaa	cgatcctgca	tacggcgccg	gaatgctcga	2160
gctcctcgtc	cgtggagaga	ttgtccaact	cccgataaag	aagaagcgtt	ccgaatccaa	2220
cggcacatat	tcttcgggga	aggaaagtgc	caaacgctct	cgaccgttgt	ctccactaca	2280
aaccggggaag	ctgaagggaat	agctcttggc	tctctgcata	aagatcggca	aactcatccg	2340
ctttgagttc	ggaacggctt	cattaaaaac	cttactatac	gtctcatatc	ccaaatcggc	2400
atgaatccgc	tctgctcggc	accgagtaca	ttgccggcac	cacgtatatc	aaatcctgaa	2460
gagcaatgcg	aataccgctg	ccgaggtcgc	tgaagttctt	atggcttggg	gccgacggcg	2520
cgaatcgtcg	ctcaggacac	tgagcggcga	ctcaaaagat	agcaaaaggc	tttctgtgtg	2580
ctccgtccca	cacgttccga	agctggtgca	actnactcag	accgtatcgg	tgggcattcg	2640
tcaatgtaat	ggtattggca	ttgggcacat				2670

(2) INFORMATION FOR SEQ ID NO:1265

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 792 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...792

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1265

```
tggcgagccg atcncggnag agaatatcgg taagcgagtt gctgccgatt cgataccggc 60
cttcaccgca ggaatgcttc tgtactgaac acgctgggtg tgtactcaaa ggactgttcg 120
tcctcgtagg aataggtctt atccttgtgt cgttttcggc cttttcggcc ttatattaga 180
gctgtttgca gacggtacgt ggcacatgct cctttgacct cggactggat ttctattcct 240
tcttgatgat actctgtgcc acgatctccg tatttattat agtagccgtc ccggtatggc 300
catcgttttc agacatcaag ggcaggggag aaacgggatt attctgcagg tctcaaatgg 360
ctgggcttga ccatttggct tgctgccgct gtctattggc cgtagtcttc atattgataa 420
cccgtgaact gggtttgaat tcttcctcca tcgccattca gtatgatgtc agaaatgcct 480
aaaaaacatt aggttccttt taggacaatc catagtaaag gtttttgctt ttttgttcaa 540
tcttcgtttt agaactctgc cttttgaaaa agaataacat cagctattat agtatgagcg 600
ataattgtca tttgactgag aaatcatttc gaagtgtgtc ctcccgaagg attccgtcct 660
gactttattt ttccgaattt gtctccaaac tgggtattgga tactcctttc tattgtcctt 720
ttcgccggat ggggttggtg aagtataaga gggccggcat ggctcccagc acctatttta 780
cgacgtaatg gc 792
```

(2) INFORMATION FOR SEQ ID NO:1266

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 630 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1266

```
ttattcaaaa agttcctcat ttctggacag atgctgttct tgacttgcta atagtgttct 60
tctcactccc ttattgacag atcattcgcg tgatctccct cgaataggga ggtaaccaag 120
cagtactacg taccggagga aagacttggg gcgatgaact gaccgatctg ctttttagcc 180
ggccggatag tgggcacagc tactcgaccg gttgttccta ctcttgaaa aaattgccga 240
aagcagctct ttcagccagc cgattcggag tatgaccaat cggaggagac caatatatgg 300
agttggagca gatctatcac tatcgcaata tgctgaacag gctagaggac tggtcgaatc 360
ctatgccatg gatatgtcag ttctgttctgc agtcttctgt tgcaaggatt ggtatccgga 420
gtgagcatcc cattcgaggg aaacctctgg tcggcctgca aatcatggga atagatcaaa 480
cgcgatcttt gatttcaaac atctgatcat tctctctgtc aacgagggta aactcccatg 540
cgtgtctatg aaacgacaat gataccctac acattgcgca gagggtatga cttcgggtcaa 600
tgaggtaaac gaagccactc aatctatgat 630
```

(2) INFORMATION FOR SEQ ID NO:1267

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 891 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...891

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1267

aatgaaaact	gcagaagttc	atcaggatca	gacgatattt	caattgctta	tcatgagtgt	60
gtgattgtag	ttattacgga	agactgaaaa	gaaaaagcct	tcgacggcac	cgaatcccga	120
atcgaaaggc	ttatcccaa	ttattgtgca	tgtatcagtt	gtcggataa	gtcatactgt	180
aaacgccgat	acgcgcgtct	tatttttttt	tccgagctgt	agtttgacgc	cggacgggaa	240
catgaattat	tcagctggga	ggtgtacagc	gaattggaag	ctcccgaac	ctgagcttca	300
caggcagcag	tacgagaaca	aggtccttgg	tgatataagg	cttcctcgg	gagtcttctc	360
cgtattgttc	ttgatatgct	ccatcagcag	gcactgatat	tgctaaaccg	atactcccg	420
ttcttaatgt	tgtatatggt	cataggaatg	ccgtgcgagg	ctgcatcagc	tcggtctgtt	480
cttgctcgaa	aagtttctca	ccgaatcctg	cggcaagagc	aacaagtagg	agggcggacc	540
agcatcaagc	cctcagatgg	cttcgaagca	ctgatattga	actgtgctca	ccgatttgcc	600
aagccaaaga	ggaagacaga	ttgctcgtga	aagcatcgta	aactgctctt	tactgattgt	660
cagttgcgtc	atcacccctg	ccggaccttc	acacaagtga	gagaatcatt	ctcctgcaac	720
aggtgggata	tttggagttc	ttgatatgat	tgacctgata	ggattcgctc	gtgtttacga	780
atgttctgta	gctgttggtg	tggaatcggc	cgtaaccttg	tagctatnga	agaggccatc	840
tgcgtattgt	cacgctgagc	acaactccc	taccgctcgt	cgagtcacat	a	891

(2) INFORMATION FOR SEQ ID NO:1268

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 353 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...353

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1268

tgcgatgtga aattcgattc cccatgggtg atggttttta ctatatattgc ggccaagaat	60
gctcctatcg agagtataaa actcttttgc aaaagtgc taggattgat atagaacgat	120
attgacaaac agtttacgac caaataaaat gaatatgcca catatactcc ccggctcatc	180
aggccgggttc catccccccg tatccggtcat accgccccgc cttgttcgga caaagcaaga	240
atatacctatg acaaataaaag aagaataaacg cttccatagc ctcctcaaag agtcaggcac	300
ccatcgagtt ccctatagaa ctgggtgggtg cctttgtttt atccctcccc aat	353

(2) INFORMATION FOR SEQ ID NO:1269

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 968 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...968

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1269

cgatccggca gccggatcgg tgctggccat agccgaagct ctgaccaatt cgtcttttgc	60
ccgcttcgta atggatatga ggggtgtgagc ctgtcggcaa ctggatgtgg ccctgccgta	120
acgaaggcga agatgcccgt ctgtacctgc cgtggaagcc tgttcggact ttgccgtcga	180
tctgggcatc aacatcctac cggcaaggac tctctgtcca tgacacagaa atatgaggac	240
aaaaagtgtc gagtcccggg acggtgatta tcagtgcgcg agccgaagtg acagcattcg	300
tcgcatcgtc agccccgtcc tcagccatat agccgctacc gcttctacta tatcgatttc	360
agcttctgcc cgttctcatt gggaggatcg gctttgcccc gagcttgggt actatcgggtg	420
atgaagtccc cactgtacgt gtccggaata cttccgcgat gcgttcaata ccgtacagga	480
actcattgac agggctctgt tctggccgga caccgacatc ccgcaggcgg tctgattacg	540
ctcttctgga aatgtgcttt gccaatgtag taggcggtct ggagggtgat tggataacct	600
cgtggaagac gacctgatca aagtcctctt tgccgaaacc cgggtatcct cattcaggta	660
aaggaccgca aagccgttga taagatctga ccgatgccgg catcggtttc ctcccgatag	720
ccaagccgac ccaaggcgac acctcttgat acataaagac ggagccgaat acctgttcgg	780
tatcaccaca tgcgcgacgt ttggtatgag tcgtcctacc tgctggactg cttcagagtg	840
gcaatacctt ggccggcaac cgcttcgaga actataagga acaccggtcg tatatcactt	900
cccaagcaat ttacgggtga tctgaagcga tggattggat cccgatcgaa agacggcatt	960
cggcattc	968

(2) INFORMATION FOR SEQ ID NO:1270

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 725 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...725

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1270

ccattgtgta	atctccccct	tccatcacat	gcttttgccc	atccacgata	gcattctgtg	60
atcgagattg	cagtcaagg	gtgccctcat	actaaagagg	catcgaagaa	aggtgctgtt	120
ctgaaaagca	aacgagatct	gaatccttat	cctgtttttc	aaacgatagt	gaagcatcgc	180
cggcacgtgg	catcaggccc	cccacttata	gtagattgta	tagctgaggc	attctccggt	240
cctgcgaaat	cggttgagat	gggttgctga	gcttgcaatg	atatagaggt	gatgttatga	300
tgtatagagt	cgtgaggatg	atgactatgc	agttgaatgg	attcgtttct	tgcttatatt	360
ntgttttgct	ttcatttctc	cttttctttt	ctccaatgat	tcaaataatag	gcaataagcg	420
gtagtagtaa	ataaaaggag	gagcctgtgc	cagacctcct	cctcaaaaac	gaatagactc	480
tttagtagtt	ttgggtgtaa	atactcccaa	agttattttt	tattcgaatt	atagatttcc	540
tgagtttttc	gattagcttt	tcaccacgaa	gatctcgctc	tataataggc	cgtaggacc	600
caacagtatg	acttgcgga	taccttgnat	gccatactat	ccgtagccac	attcttagca	660
tcgatatctg	aggccatacc	acgttggaact	tctttgcttc	agtgatcttc	atttatccaa	720
actac						725

(2) INFORMATION FOR SEQ ID NO:1271

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 648 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...648

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1271

gcgcaatgta	tcgttcacgg	ccaaacaagg	agaagtcaca	gccctcgctg	tccgtcgggt	60
ggaggaaaga	gcacatcggc	caagttggct	gcacgctttg	ggatatagat	ggaggaaaga	120
tctttttggg	aggggaagac	atttcgcaat	cgaaccgaa	accctgctac	gtcattatgc	180
catcgctctc	caagattact	gctcttcaat	gcacgggtgg	ccgataatat	ccgcataggt	240
aaaccgatgc	tacagatgaa	gagctcaaac	gtgtagctng	gttggaaga	tgcgcggaatt	300
tgtagatcgt	ctgccgaatg	gatatgacac	tttgatcggt	gaaatgggtga	gaacctttca	360
ggagggtgaac	gtcagcgcat	ttctatagcc	aggctttact	caaggatgct	ccgattgtgc	420
tgctggatga	agctacggca	atctcgatgt	tgagaatgag	acactgatac	aggccgggtat	480
atccgaactg	tcaaaaacaa	gacagtcctc	attatcgctc	atcgtagcgc	cactgtagca	540
atgcccataa	gattgttgta	ctcaaagaag	ggactgtagc	cgaatgtgca	gtccgccgaa	600
ttgatggcca	tgaacgggtg	gttgctcgaa	tggtggcggc	gcagaagt		648

(2) INFORMATION FOR SEQ ID NO:1272

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 821 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...821

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1272

cacgctatgg	ccatagactc	gcgagaagac	tttgggtctga	cggntccgca	atgcaacgat	60
ccgtatgatc	agcgtggcat	agccgatcag	cagcagcagg	agcttaagaa	accctgctct	120
tcgcccacgg	tacagaagat	aaagtcctat	cctgctcggg	cacatatctt	agtttgggtc	180
gtgtcccttt	caggaaccct	tgcccataaa	tccgcccag	ccgatatgta	tcttggactg	240
gtctaattgt	atcctcctcc	cgcgaatcg	tcctctattc	ccaaggcaac	cctgtacgca	300
tctgctgggtg	gggctgcatc	actttgttga	atacatagtc	cacgaataga	agtagccac	360
cgaacacaag	gcgaaaacgg	ctatcagcgc	atcgacagta	cataccgctt	gatggccatt	420
gacaaagccc	atacgatcaa	tctgccaaga	gaccgtatgc	cacgaggaca	aaatccaccg	480
acacgaagta	gacagcacta	tggctacggc	ataggtgaca	gcagtaagcc	ctgccgccag	540
acatagaagc	gtcctcgctc	cttggtatag	atccgcacga	ggaagaatct	atcacaaaag	600
ccatcgagac	cacagaccat	tcggcggcat	ccgtatgccc	caccacacat	cgccctgcaa	660
cttcagagcc	gtgacgaaaa	agaggaggca	cagaaggcaa	tgccgatgaa	tacgccggac	720
attccctcac	gataggggca	aggaaaaaag	ctatatagac	gagggcagac	cccgtttcgt	780
ctgacaggat	aagcagtacg	ggatgaggat	aatggcaaaa	g		821

(2) INFORMATION FOR SEQ ID NO:1273

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 472 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...472

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1273

ttgaaagaaa	cggaaggaaa	aatctcgcag	acttctttat	ttgagcgatc	ggctccgggt	60
ttgcctgctt	tgatgtaggc	gttcatggat	ttaatgtctt	cgggttgagc	cggctacggt	120
cgcagcggta	cagctccgtg	aagggaattg	atcgacgatc	ctctgcaaaa	ggctcgcttg	180
ggagggaatg	cctttgtggc	gaagtactgc	tcataggtgt	attcgacgaa	agctgtggta	240
ggcccatgcc	acggcgggtc	aggagatagc	cgctgggccag	ctccaccgga	gtgcgaaacc	300
atcgccacga	cgaagatcgg	aaggggcagg	acgtgccacc	acaacttttt	gtcagccgag	360
agggtgatag	gcacgagatt	gcgatagtcg	cccgcgtctt	gtaaatagat	atcgagacca	420
atgccatagc	cggcgtcatg	gtgctactcc	atcggggcca	ttgccctcct	nt	472

(2) INFORMATION FOR SEQ ID NO:1274

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1342 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1342

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1274

agttcagcac	cgatttcgtc	cagccggaca	ccgcttttga	aagcgtagct	gctggagtat	60
ctcacgacgc	aaattcaaat	ccggacgttc	tatcttgaac	aggtagcacc	ggccatacga	120
gtgaccaacc	ggctctccat	cccgttaggt	ctacaggagg	tttgctccgac	gtcaagacta	180
tctgtttgcc	aagcattaga	ggtgattgaa	cacttggaag	aaagctaatt	gcgttttctt	240
cttgcgatca	accattggat	gtcatcgatg	atcagtagat	ccacttgctg	gtagatgcga	300
tgaagtcatt	gatcggtccc	atacgggctg	ccgtagtga	ctgatctcga	acaaatgact	360
cgatacgtat	agtactttca	accgggggtg	cactctctga	cacgaaggcc	caaggcatgg	420
cacaagtgcg	tcttgcccac	acggaagctc	catatataaa	gaatggattc	atcggcgtat	480
tgcccgggct	gcggcgatgg	cttcagccac	tgagcgagct	acatagttgc	attcgctctg	540
tagaagttgc	ggaaattgag	cctgctattg	agctgcgtgt	cgaaatccgt	gcttcgctat	600
gggtggctgc	attgggcatg	tgctgtgtga	gcaaattaca	tcgaactgtt	cggctgcctg	660
tccaccgtcg	gcacaaccgg	ccaatgcacc	gtgccgggat	atttgggcga	actgttgtct	720
acaagggcac	tatacgtaat	gatgcgttgg	gacctataac	acgccccaac	accgtacgca	780
gctgtctacg	aaattgccct	ccaaaaactc	acagaagaac	tgactcggca	ctttaaggta	840
agcgtatcgc	cctcgataga	taccggtatg	ataggcaaga	acatgtacgg	tatgctcgct	900
catccacaat	atcctgaagg	atgcgaagac	agcgtcccat	atttcattta	cattgggtcga	960
gtggtagtgc	atctaaaaaa	tatcgttttg	agagcagtcg	ttcattgctc	ttttggggat	1020
agcaaaggtc	aaacaaaaga	gtaaaaaac	aatcgacaaa	aagtgtagta	taattcagtg	1080
aatcgtatct	atattgtttt	cagatgggta	taaccttgag	atataaaagc	gaaggaaaca	1140
acgctattcc	actgcattcc	agacacttat	acgaaaccga	ccaaggcgcg	accgagttat	1200
caacacccaa	gacagagcct	cgattagttg	tgtacaaaaga	ggttgcgagg	aaggagagaa	1260
aaatttttca	acagatcttt	atttacaatg	aatcgaaata	aggaaaatct	ncggtgctcc	1320
ctaaatcagg	atgtatccaa	tc				1342

(2) INFORMATION FOR SEQ ID NO:1275

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 852 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...852

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1275

atcttcaatc	cgagaaaagt	gggctcagtc	aatcctgaag	caatcttcag	ccatcacgat	60
agaccgtgta	ggtataagaa	cgaacagcct	gctccggcat	ctcctcagta	gcgactatct	120
cctgcagagc	ttctacctct	gcctctatgc	gtctgtctcc	tcaaaccggg	gcaacgaaag	180
tcaatgattc	caacactctt	cgttcggaat	aatctcttga	gctgctactt	ccaatggcat	240
aataacatgg	gtaaaaccag	ccaaagcagt	gagcagactc	ttttgaagta	gttcgtttca	300
tagttatctc	cttttttaat	tagtatctca	tcttggtgct	tctttcgcc	cttaaataag	360
gtgatacaca	aagataaaaa	tatatctgc	cgcaagctat	tcttcaacct	aaaaagtgtg	420
tatgacgcag	gaatcggaat	ctttttcttc	gacaaaattg	aagtcaatca	ggagcaagga	480
ggttctcttt	aggtcaaaa	actgatgcta	cttgctttta	taatgtttca	ttgcttccgc	540
atatattggc	gaatggcagc	tatccgattg	gcacgcctcg	gatgcgtatc	agaaactcta	600
cccgcccggt	accttgggca	gccatctttt	gccaaaagta	attgccgnat	tcgggttata	660
accggccatc	gccatgaaga	caagtctatt	ttgtcggctt	catactcctg	tttccgattg	720
tagggtagcc	gtaatagcac	ttgtgatcca	atgccatagg	cctgcccgat	gaccgtttgc	780
agtgtgctga	cttggtggag	actgctgcgc	ccagtatatt	accacccatt	tgggtagata	840
ttcctgactg	at					852

(2) INFORMATION FOR SEQ ID NO:1276

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 854 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...854

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1276

cggcaagttc	aaaagcgata	atcgcatagg	ttaatcaggc	ttcctcaaaa	aaagggaagt	60
ctgattttta	catccatgca	aggagcaata	tgatataaat	gtctattgcc	gatgttgcca	120
tttctcttga	aatttacgag	tgagttgacg	atttcccctc	caataatagc	caattcgagt	180

gtcagtttct	ccaactagtg	agcatcgcaa	aggctttctt	ctccgtaaaa	ttgcttttca	240
aagcgctaca	gtttggttat	aattcacccc	gacactgcga	aattgtccgt	acaagttgtc	300
agtttttggg	agtaatcgag	caacgaacga	tccactttta	tcatcgaaa	gtctcattaa	360
agacccttgc	cttgatgaaa	gcggctctat	ttgaagcccc	gattgctcga	atagcgttag	420
gaaacgagca	aattctgtgt	cgtaaatacga	accatacaac	aatggtcggc	tcgttcattc	480
ttgggagggtc	ccccacattt	ctctttgtca	ttacttttga	ttttaatggg	ttgtaattcc	540
tcttctggaa	atagaacgtg	ctaaacataa	ttgaaatcca	ttagagagg	tcacgataaa	600
atagccaatc	aagacaacga	aaactttctat	ccaagaaacc	gacttcggag	gtgttctgcc	660
ctctgcaaga	gcaagggttt	tgagttccga	aataatttcg	ggtaacgcaa	gacatacctt	720
gctatttgca	ctgaccaa	aaattcggtt	cgaagaacga	tatgttattc	tctcgaaatg	780
tatgtttcaa	agccttgaaa	taccgactta	tcgtttactg	caaagttact	aagggtgggc	840
ctaaatccct	tacc					854

(2) INFORMATION FOR SEQ ID NO:1277

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1178 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1178

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1277

atgaaagttt	ccgcccacgt	gtttactacg	acttttgccc	ataagtatga	ttcctgcccc	60
acctaagtat	ggtcgatctc	atttttcatg	aaggaccacc	gcaatacaga	ccttgaagga	120
gtgtattcgc	tgacaaaaaa	taggtgaaaa	aatctctatc	tttgttcgaa	ttgataatag	180
tatctgatta	tgacaatctc	gaagccatac	aggcaccgat	aaacggattc	gtcaaagatt	240
ttcatattcg	tttgagcatg	cactcgattc	ccaatcggag	tggtatgacg	aagcataaag	300
atcttgaacg	gttccaccgg	taaacacgtc	cgtcgcgtcc	tgacggattg	gtcgcagccg	360
tctgtgccgg	caaaacgaat	tcgacgactc	ttaggcggct	gtcctgctgg	aaatgatcca	420
tacggcaacg	ctgatccacg	agacgtcatc	gatatggctt	ctacgcgtcg	gggagtaccg	480
accctcaatg	ttttttcgac	aatcgtgtgg	ccgttttgat	ggggggacttc	gtgctctctc	540
cgccttgatg	cgtgccatcg	ctctgaatga	tattcgcata	atcacgatat	atcccggctg	600
ggacgtgagc	tgtcggaggg	tgagatcagg	cagttcggac	agccgacaaa	gtgataatag	660
acgaagacat	ttatatgggg	gtgatcgaca	gaaaacagcc	atgctcttta	gtgcttgtgc	720
agaggtcggg	gctataccgt	tcaggctcca	gtagagattg	tggaaagggt	gaagagggta	780
gggggttgct	cggctatgct	ttccagatca	gagacgacat	attcgattac	tatggaatga	840
cgtaggcaca	cctacgggca	atgatatacg	ggaagggaag	atacactgcc	tctgtgtttc	900
gctctcaaga	acgagcagtc	tgcgctgcga	gtcattgtct	caccattctg	gacaaaaaag	960
ctttctcgga	agaagattta	agcttcttac	ctcctttgcc	atagagcatg	ggggatatag	1020
ttatgccgaa	gaaaaatggc	tgaatttata	gacaaagcaa	aggctgagtt	ggctgtttcc	1080
ctgactcaga	tgctctgcag	tcgttgcttg	ctttggctga	ttttatctac	aaagagcgaa	1140
ataataagtc	ttgtactcat	tctttcttaa	aagccggc			1178

(2) INFORMATION FOR SEQ ID NO:1278

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 678 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...678

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1278

gcgttatctc	tatcatagtg	gatattcgga	gcattccgct	gccggcacct	tccctgctac	60
cgtttgaccg	gacatccgaa	gttcagatcg	atcaagatcg	gaccggccga	ttcgcatagt	120
cgggcaagcc	tctaccatcg	aagccaaatc	ccgtccgtat	atctgtacag	ccatcgggcg	180
ttccgattca	tctatgccat	ttttcggaat	gtgccggcta	cttgacgaat	cagggcatcg	240
gcactagaaa	ttcggaataa	accagatcgg	caccgaactg	cttgacatg	atccgaaggc	300
tacatccgtc	acatcctcca	tcggagcgag	tagcaaaggc	tctccccgag	gtctatggca	360
cctattttca	tgctccttgg	gctatggctt	gtcctgtcgc	agagccgctt	gaatatcggc	420
acatacgttt	tcctctccca	aagctctacg	atgcctgcag	tggcaagtgc	ttcgtggacg	480
tccttgcgca	accggagagg	acgatgctga	ccccctcttt	ccggctcatt	ttgatcaggt	540
ttccagattg	tgcattccctg	tcgaatccat	aaacggcaca	tgccgcatct	gataatccga	600
acatcgggat	ggtcgcccaa	tgtgttcatt	atctcttgaa	tctgttcgcg	ataccaaaga	660
agaaaggccc	ttcgattt					678

(2) INFORMATION FOR SEQ ID NO:1279

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 709 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...709

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1279

gcgccccaaat	gccaaagatc	ggaggggaaa	ctttcggcct	gaacgtaatg	gtgaagagga	60
cagggatcag	accgaaaaaa	atgaagactg	cgatttcgcc	aatccatgat	aggccaaagg	120
ataaggaccg	gactatacag	acaaagccca	atggctacaa	cgactcccac	gaccagcaac	180
caccagttgc	taatggacaa	agcagaaaaac	cgctaaaggc	gagcagaaaa	agaaatgaga	240
aaagactgcg	agaacctgtc	gctccgacaa	ccaacctttg	gagatcccac	gttcaagcct	300

acacgctgat	cggtatccgc	acccttctta	tagtcgaacc	aatgttggct	atattgctga	360
cggtttgggc	agacaccgct	acgatcaaag	ccaagcggcc	tgtggccagc	gaaaattgcc	420
gtcagctata	gcataagcaa	tgctacaacg	acaggactga	cagatgccgg	cagggtatga	480
ggccgtagca	agcgagccaa	gctttgagac	gcgggggtga	tccgttattg	ctcatctgaa	540
aaagacttcc	cggtagcgga	cgcatattat	aggaagaagc	catcacggtc	catatgctcc	600
ggccgaacga	atagccagat	aatcgccgcg	tttgagtcgg	gcatgagcaa	ttcacgctcg	660
aatacatcgc	tggatcgag	attgggcgac	aacatcgatt	tctctgcag		709

(2) INFORMATION FOR SEQ ID NO:1280

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 627 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...627

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1280

ggcagaggat	gatgtggaga	cgatgacgac	taccgacctg	catacctatt	atcgcacag	60
aagcaaaggg	gcgtgggcaa	cgtcaagctc	tttgagatga	actgcacaaa	cgctatgcag	120
ccatcttctc	tgcctttatc	ctcaccatat	cggtgcttcg	ctctcttcac	gcaaagtaaa	180
aggagggatg	gggatcatat	cgctatcggt	ctggggctta	gctttgccta	tatcctgttt	240
atgacgttgc	cggtagcatt	gccatcagcg	gatctttgcc	tccgtttatg	gcagttgggt	300
gcctaacttc	gtgtttacgg	tcattgccgt	ttccctttat	aaaaagctcc	gcgataggca	360
gacttccgga	tgtaacgata	tccacaacta	tgaagagaaa	atacagaaga	atatacctcat	420
aaagaacaaa	cgtgccactt	tgattacgag	atctttggacg	tttacacggc	gggcattgta	480
ttggtcggta	cgagatcaaa	tcgctccgac	tgggcaaagg	cggtttggtt	gatacctatg	540
ctacttccat	cggggagagc	tgtgggtgaa	gaatatgtac	atagccgata	ctctatgcac	600
ctatacaacc	atgtgctcgc	cgcgacc				627

(2) INFORMATION FOR SEQ ID NO:1281

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5789 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...5789

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1281

agattttttc	atccggccag	gtcagtcgat	agcaggccgc	tacaggcggt	cgggagagta	60
gtgcatcatc	agttcgcgct	gtacatcgtc	cacgatgcgg	cattaaggaa	gatacacatg	120
gtgctttggg	actgtgccag	cagatgggct	tctctttctc	cggcatggga	gtgcgccctt	180
cgccacgggt	gaggatatgg	tttgtgtacg	ttcgggaatg	gtaaactgtg	agcgagagc	240
tgcggtgcag	cttgaaacga	ggagataccc	ggcgtgatat	gatagcgcag	gccgagtggt	300
cgaagagtgc	catcttgctct	tggatagcac	cgtagatgca	gggtcgcccc	tatgcaggcg	360
taccactaat	ttgcctcggc	ggtaaaaagtc	cgcagatgct	cgaactgttc	ttgcagattc	420
atcgagcccg	aacttctgac	ctggcaccgg	ctttggcaca	agcggtcagt	tcgcgagggg	480
caaggctgcc	gcatagagaa	tcagatcggc	cttttccaag	aactgtctgc	cacgcaccgt	540
accagatcgg	gatcgcctgg	acccgctccc	actatttcga	tatggccgta	cgggtggagt	600
cggctgtctg	tgccacggca	aaggtaaaaat	cgttacctcc	gatactgtcc	ctttctgctt	660
ctctatcaca	agacttccca	tatccgtact	ttccgtgccc	aggcttcggc	tactccgtag	720
caaccgtaaa	cggcaataacc	ttttccgagg	ggttggctac	ttccaccggc	tgtaagtctt	780
gtccgtatat	atatgtagcg	gtatccctcc	gagacgatgt	acgagatcgg	ccaaagcggc	840
tcttcggctt	tgatgtcgat	cgtggctatc	cgaccgatgg	ctcgggggca	taacctgact	900
cccgtatttc	ggagaagatg	tgttccgcaa	tccttcgggg	gcacatagcc	tgcgacaacc	960
tactccgatac	gtaagagcag	aggatagtag	cagatcatcg	gcaaccggct	ctccaagtgc	1020
cgggcagaaac	aaccaaagt	aggtcgaact	ccgcctgac	gacagcatcg	aatgagtaaa	1080
aaggcggaca	tgaggcggac	aagacctttc	caaaaaatct	tctcctcccc	cgaagtctcc	1140
aataccaatg	ccgtacgtgc	tccccccacg	aagagcaaat	gggacgattc	atgtcgccctg	1200
tattggaaac	ggctttccat	ccatagtcga	agccagcgta	tccaatgccc	agagtcctgt	1260
tcggtcgctt	tggggggtaac	caccgggttcg	ccaccgatgg	cagaggcgat	cagccgcgtc	1320
agacgttagc	tccacccata	tgaccgtcga	gaacggaaac	cacgtacctg	ccgtactgtc	1380
tacgttcact	acggccggat	catgatgttt	gtccgccaca	taggcgcgat	gctccttata	1440
cagattccca	tggcaccgat	gaaaaaccaa	catcgtatcg	ggcaaaaagat	tcggccatca	1500
gctccgcaat	ggaagagacc	aggaaacatc	ctccgtgcag	tcggtaaaaat	tcgcgccgac	1560
ggcaaaaact	ctttctctcc	cgatagtctg	gatgcaatgg	tccgcgccaa	tgccagacgg	1620
cagcggatac	acagattatg	gcagtatgat	tcggtttcga	catgatgggt	agtgtctatt	1680
ctttttttct	tgcttgaggt	atgtcgatag	gattgtgccg	tcagccgtca	gtcggatgga	1740
tgagagcagc	tccatcccac	aggctctatt	ccgggtgagga	agaggtgccg	actctcttcc	1800
gatacggagt	tgataccagc	aggccgcctt	ttgtcataac	actgtgcacc	ttagcgatca	1860
ttctacaaga	cggcctccgt	gaccgccgat	aaaaacggca	tcgggcgagg	cagggaagaa	1920
atatactcct	ccataaaaatc	tccgatccgg	tacgctatgc	gggtgcaccg	aagcggcggc	1980
tgttcacggg	catcagttcg	gcaccttcgg	acggatctca	aacgcagtga	tatgcaaatg	2040
aggaaagttc	aatttggtct	gatggaaacg	gatcccgatc	aaaaacctat	atcccaaaag	2100
gatgaggtcg	gtgcagttcg	agacaactga	gcgaaacgag	tcggaacggc	atcttctaat	2160
catcttcggt	cggcgttga	gcggcatgaa	agcactttcg	gacagccgag	cggagcacga	2220
ctgcaaacga	atggccgagt	agccgagagt	atcagcagtt	ggggcggttcg	aagtgcgcgt	2280
cggctgcctc	tcgcagggag	aactgtccaa	gcattgtctt	tggggggtttc	ccatccgagt	2340
acctacggac	atgtatagtc	ctcatagccg	taatcgagca	ttcgcattgc	gatacgaggag	2400
gggtatgctc	gtggtcgggtc	agaatgccga	tcttctctgc	ccgctcgatc	gtgcacgggtc	2460
gaactcatgc	catggcctgc	ccgtaagcga	tacgatccga	tatcgtggta	cggcatacga	2520
agagcatgag	caagcatctg	caagctgtga	acgtgggata	gaccgtaacc	acggcatcgg	2580
gtagccgatt	catcacctat	tggcaaaagg	gaagaaaagc	ggatcccccg	aagcgaatac	2640
aactattcct	catactcccg	ataacgggca	aatacatcat	ccagcgggtac	tgtaaatcta	2700
tccactcggc	atccgcaggg	agtagtccgc	gcacgatctc	atgagccggt	tgctcctgct	2760
gaatatcttg	ccggaagcaa	tagctgtcat	agcgcaggag	ggaagaaaag	atgagggtca	2820
tcgctcatcc	cagatgatgc	gatcgctgtc	gccgtatctg	aggagaagct	cctccgtaag	2880
tagcttcaca	ctcgcgcccc	ggtctgagtt	gttcggcatc	gttatagcag	agtatggcat	2940
gaccagcgtg	gcagccagat	tgctgcccgc	tttacggcct	tcgacgatat	cttcggaatg	3000
gagcggaaac	gcttcacggc	atgtttggat	tcctgtactg	gacgaatccg	accgggtgccg	3060
caatgatccc	ggccggagag	gctttgctcg	acggatcaga	tcggccaggt	cctgtaaggc	3120
tgtgggtgca	ttgccgaggc	gaaaagagca	tcgggggtgt	cctccacggc	caggcgtatg	3180
cctgctgcgt	tcgggtgatg	ccgtgacgag	cggccagttc	tgccacgcgc	ggatatgcag	3240
atagcatttg	gcctccacac	ccagacgctc	cagtgcctcc	ttggaatacc	ggaggtaacc	3300
atgggtcacat	ctgtgacaat	cgtgcgcagc	cgccggcttc	gatcatttca	tacagagaag	3360

ccaccggacc	ggcatccgtg	tgaggatatt	ctccatgtcg	aagtccgctg	tggtatgaat	3420
ggcatggagc	aagccactt	gtggtctaaa	ggccaatcct	gacgggtgcag	ctcttttctca	3480
tcgtgcgga	actcttgatc	ataatctcct	gcccgatacc	tttggcttga	tctctttcttc	3540
ggggtagtag	ccgcgagggg	tgataaagtg	cccttcgagc	agtacgactg	ggaattgcct	3600
acgagtacca	cagtgaacat	atccacactt	cgggatcgaa	ttcgcgcgaga	gtcgtcaccg	3660
tcacctgtc	ctcttcggcc	tgcttgacgg	acaagtccga	cggcgtatcg	gccgaacgat	3720
actgatgaag	atctctacga	aacgatagag	ctgccagtat	cggcctcgct	cttggattgt	3780
atatagctgt	gacgaagtcc	gcgnaggctg	ctgccactat	gccttttcga	tgatcggcca	3840
aggggtcatc	agatcgctca	gcgagatcag	gagaggctgt	gaccgatggg	agcaccacgc	3900
agcgaagccg	ctttctgaaa	gcactgatac	cgggcagcac	ttcgatgtcc	atctccacgc	3960
ctttggctct	ttcatttcat	atataagagg	agccataccg	tagatgccgg	catcgccgag	4020
ctgatcacgc	agaccgtctt	gccgctgagg	gcatacccg	atgcttctcg	gcacgctgcc	4080
gctccttctt	catgccggta	tccacgcagt	gggtatcgga	cggagataag	gttcgataaa	4140
acggaatatg	tatttatagc	cgacgctacg	tcggaccggc	cgatagccga	tagcactgca	4200
ggagtaatat	ccgagctcct	cccggaccga	tgccggctac	gatgattcgt	gctcgattca	4260
tttactgaaa	acaaatgaag	gtattggaag	aatggagatg	gcgggcgaat	aggtttgcct	4320
gcgctcccca	caaaagtaaa	gaaataagac	atgcagccat	acgccccgac	atcgatccga	4380
tcgcgccaat	gtctatagcc	tgctgtcatg	aaacacgaac	caaaaatgcg	ccgattgcgg	4440
cgcgtgtttt	ctgaaaaaag	gcgcgagaaa	ttgtttcgtt	gtggcgtgag	aatttttcat	4500
tttcccgcaca	gaagcaaaaa	attacgcgcc	acgttttgag	gaacgacgaa	caccaaattc	4560
cggcgcgtaa	ccgatccctg	tataagccga	tgtgtcaatg	ctttttgttt	gagttcggta	4620
tcggaagaga	gtaatagtag	tatcggatga	ggtaagcttc	ggatcgtcga	tggggtgctg	4680
aaaggatgag	attcggggaa	gggcaaaaaa	ttgctctatc	ggatgacaga	ttccggtttg	4740
ttctgcgtct	cgtaataaag	acctttgcaa	cggaggctct	gtcccgatta	cttaagcatg	4800
gagtgaagc	attcgcccat	agcgtagccc	ctttggcccc	tcgactcaaa	cagtggcata	4860
tagcatcctc	gacgacgagg	aagctgcggc	cgacgtgtcg	aagaggctct	gatgcgtctg	4920
tgatcaacc	gagagcggct	gggcggatag	acagcatcga	agcagtggct	gtgaccactg	4980
ctcggcgaat	agccttggtg	tgctccgcaa	agaaggacgg	atggaaccgc	taccggacga	5040
tctgccttct	ccgatcatgc	ccctacaccc	caagggtgtac	tggagcaatc	cgagacatgc	5100
gtctgggtgga	agctgctatc	gaagcactgc	ctccgttgca	gcgaagactt	tccggctgaa	5160
agagatcgaa	ggctacgaaa	gcgaggtaat	cgcgggtcgc	taggcgtgaa	agtcgaagcc	5220
gtttatacca	acttgagccg	cgcgcgacgc	cactgcgtac	agcactggct	ctccaactca	5280
aacgatgatg	aacgaatagg	gttcaacaaa	aaagctgttc	cgaccgaagc	ggaaatcggc	5340
cattgttaga	taagtacttc	gacgggctta	cctccggagc	agaagaggat	gcctgcgtcg	5400
ctattttgct	acggccaagc	tgcccagagc	gtgggagcat	tgcgccccct	cttcggttat	5460
gtcagttgca	ggcgtgccgt	ggatgggctt	tcctttccta	cactcggaag	cttgctaccc	5520
gcaacttgct	ctcaagagta	tcctgtggag	tgtaggagga	gcctccgtag	cagcagccat	5580
cgctctacga	tcgctctccg	atcgccctcat	gtggcggatc	agccactgcc	gactagggtt	5640
ccttcgccgt	ggtgaacggc	gagcgtgtga	acgatcccg	tctgtgcgac	tgtatgcaca	5700
ggaagccttc	gatgctgtat	ccatcgatag	ggagagttgg	cacaggagct	tttcgacctt	5760
tgacagatag	atgagcgaat	actaaatca				5789

(2) INFORMATION FOR SEQ ID NO:1282

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1058 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...1058

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1282

actcatggaa	atgccgactg	tttggggata	gggcagggac	tcgacgtcat	actctaacag	60
cccgattgaa	ccaatacatc	ttcgcaggga	ttatgtacag	tctatcatgt	agttcggctg	120
tagcagattc	aactattaga	tcgcttgaga	agtcctgacc	acatacgcac	ctaacaaggg	180
attctcggct	ttcttagagg	aagcagagcc	acccaatatg	ccgtttat	agaaggcccc	240
tgtccccgtc	agaattttat	gaatatattac	cttattcttt	atatcacaat	ctctgactgt	300
tgttggcgaa	atgttgctat	catccattat	caataactaat	tctttgatac	gtattcgaaa	360
ttcaacttca	atttgcttgg	cgacctgca	ctaacattat	ggctcatggc	atggagggtta	420
gtaattgtat	tacactacca	acaacacccat	tataagcagt	ccgataacaa	taaaaaatgg	480
tggtgccta	aaataccgga	aaaaggagtt	ttgcatttta	ctaataatgg	ctccatacag	540
tcatgtccgg	aggaactctg	gaaataggca	atcaggctaa	aatatccgag	agaccgggtgc	600
taacccccacc	tttattaccg	tttacggcga	tggtcttcga	ttaacaagca	ggtagagata	660
gacaatatag	accgacttaa	cttgtttcta	cgcattcggg	catgcccata	tttcattttg	720
acagtgtgaa	attcacagtg	ccccgctgta	tacaacgaac	tgtattgtgg	agataagcaa	780
ttgcaattta	ccaatcgaag	tgacattatt	tcaaagaatt	gtgacctaa	cgtgaaaaca	840
gtatgttttag	cagttcgggg	ataacggtat	tcaagcctat	ggtacaagct	ccatcaccgg	900
attatctaca	aaagcaaaaga	ttaccgacaa	tctttttttg	cgacaggaaa	cttcgcctac	960
catatcacaa	acacgccagg	ttaacagcaa	cctccaatgc	tgccatcaag	ttagacaata	1020
ttcctgagtt	taccatttcc	ggaataaaat	agtcaatg			1058

(2) INFORMATION FOR SEQ ID NO:1283

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 609 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...609

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1283

ggccaacctg	cagtgttaac	ttgttctttg	atttcttttg	ccatagtctt	attattttatt	60
tttttctttt	ttggaggatt	attgtctctt	cccttaccct	ggggtttcct	gtttttgaag	120
gccaacctgc	agtgttaact	tgttctgttt	ttttgttttg	cccattagat	gattgccaag	180
acatcgtttt	ggcgcagatg	atatattttt	caccctccag	ctctatttca	gtgccggcat	240
atttgcgtag	agtacgggtg	ctcctgcttt	gagcaccatc	tcttcgtctt	tcgtccgttc	300
ccgacagcga	ttacttcacc	cttgagaggt	ttctcttttg	ccgatccgga	ataatgatcc	360
cgctcactgt	tttttcttct	gctgcagccg	gcttacaagt	acgcgggtctg	ccaatggttt	420
gatgttcatt	gttgcttggt	tgttattgtt	agttgattgt	ttgcctgtac	aaatggggaag	480
cctcttatgt	gctccgcaat	ttttatgtca	atagctatac	caatgccgat	ttcctgacta	540
ttcctgtcgg	aatgtgctta	ttcgctgtca	gaatggcagg	attgtacggt	agcatctgct	600
cgtgcagaa						609

(2) INFORMATION FOR SEQ ID NO:1284

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 530 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1284

ggcctcccga	ggcaagagcg	ccaatacggc	cgtgatgtcc	ttgtcattgc	catgccgaag	60
acgatacgca	gctgtcggta	agtctgtcgt	ctcagttgtc	ggtgatcaga	cggaatccgt	120
cttcgtttgt	tccggtatcg	catacgaccg	tggctgctcg	gccaactgct	gccaacggcc	180
aaacagccct	gacattccgt	aacgtgggca	aatccttcac	ggacgtgttc	cgaagaaaga	240
ttcagccgca	tcgtttggaa	aggacctcca	cggcacagag	aatcgtagcg	gcgtctcctc	300
ctgagccaag	ccggtcagtt	cgccacgaac	cgatccatag	tccgtgtttg	gtatgtatag	360
caaccgtttt	ctaattgtcg	ggaaatgatt	accccgattc	ttgagcaaag	acaatatccg	420
ttctttcctc	atcggctttg	tctgaaaggc	atggcgcaca	cctcctcggc	tcggccgacc	480
acaacgggga	tccggacttg	atgatcccg	ccttttcgaa	gctatcttct		530

(2) INFORMATION FOR SEQ ID NO:1285

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 712 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...712

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1285

ggcggcaggc	atccccacgg	gcgcacgcgt	cggcaggacg	atagtcccg	attcgacgag	60
cctacaccga	tttccacttc	ggagcaaata	attccgaact	ctccactccg	cgaatcttgg	120
atctcttgat	ggcaaactct	tcttctcgtg	atagagcggt	gtgcccaccg	ttgccactac	180
caccttttgt	cctgcaccac	attggggcgca	ccgcagacga	tttgcaaagg	cgcatccgcc	240
cccactctac	cgtgggtgata	tgcaaataat	ccgaattcgg	gtgttcctca	caagcagaac	300
atggccgatg	accaaacctc	gcaagcctcc	ccgaatcggt	tqgtctcttc	tacaccgccg	360
gtctccagac	cgatggaagt	gagcgtgtcg	gcattctctt	cggagagagg	gtgcagggca	420

ggtactccaa gagccatttg ttgagatatt catctttggt actccttagt tgtatatgtg	480
cttcagagac catgggtcag gtctcaaacg cgattattat atgtaagccc acaaatttac	540
gtttttctcg gggagtgttt gttttatggt cgtcttgccg tggtttggcc ctccgagtgc	600
tctgcttttc gttctcccaa agattctggc tttcctttcc ggtttggaaa aaattcgggt	660
gtatttcngg cctgtaaaac gtggttttga ggaaatattt tttggttttg gc	712

(2) INFORMATION FOR SEQ ID NO:1286

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 527 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1286

tgctttctcc tctgaaaaca cagttagagc aacaagtcaa ttggagttca ccgtcttcgg	60
ctcttatggc agtagcgagt tctttatcaa cgttttctcg gattcctcat attggcaggg	120
atcatcctgg accgcatggg cgtgcgttca ctgccatttt atccggcagt ttgatgcttt	180
tgggtgccct tattaagtat atgccttgag tgaagtcttc aatggcggcg gcttcggcta	240
cgatagctca attccttttc tatgggtttc ccgccatctg ccaagctggc ctgttcgggt	300
ttgctatttt cggatgtggc tgtgaaatgg ccggcgtaac cgttcccgtg ctatcgtgaa	360
gtggttccat ggcaaagagt tggctttggc cagggacttg agatggctat tgcccgtttg	420
ggagtcttcg ccgtgtttctg gcttcaccta tcatttcaaa gcagttcgaa ggtacgcttc	480
agagcgttca gtaccgggta tttccgttac ggcactcctt tcacg	527

(2) INFORMATION FOR SEQ ID NO:1287

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1613 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1613

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1287

gcaaaaagtct	cggtctgtaa	aatcaattct	atcaactcga	cacccatcaa	cgaaatgcaa	60
tgaaatatgc	acttcatccc	ctgtatgaat	cagggttttt	catcttcttt	attgaaaagc	120
aagaatcaaa	attcgatcgc	cgtctctctt	gacatttcaa	gttcttcttt	ctacggcaat	180
ggacaatcga	tcattcagaaa	aaggctgctt	gaaaatgagt	cggaatattt	tagcaggtag	240
ctcttctttg	ttcttgcattg	ccgaaaatga	cagagggttg	caagcaaaac	ccgtcgacac	300
tgtaaaattaa	atacttacct	ttgcaatagt	gacattaaaa	acataaagca	cagaaacaaa	360
tagcaaattct	gaaatgaaag	aatttttcaa	aagtttttcg	cctcgatcct	cgggggtata	420
acggcaggaa	tcattctgtt	cgtatctttc	tatttatctt	tttcggcatc	gtagccggta	480
ttgcctccaa	gcaacgggag	gaaccattcc	gaagatcgaa	gcaaaactcca	tcctacataa	540
gacaattctt	ctttccctga	gatcgtatcg	gccaatccct	ggagcatgtc	acaggcaaag	600
acgagtcctg	atcgctctca	caggcagtcg	aagccatggc	caagccaaaa	ataatcccaa	660
cataaccggg	atcttctctg	atctggcaac	ctttccgtcg	gtatggcatc	ggcagaggaa	720
ttgcgtcgcg	cgttgaggat	ttcaagatgt	cgggcaagtt	cgtcgtatcc	tatgccgaca	780
gataacccaa	aagggttact	acctctccag	tattgcagac	aaactctacc	tcattccgaaa	840
ggaaatgttg	ggcttatcgg	gattgacgac	caaacaatgt	tcacaaagat	gccctcgaca	900
aattcggcgt	gaagatggag	atcttcaagg	tggcacctac	aaggcagccg	tagagccatt	960
catgctcaac	aggatgagcg	tgccaatcgc	gaacaaatca	ccacatacat	aaacgggctt	1020
tgggacaagt	cacatccgat	attgcagagt	cgcgcaagac	ggcaatggat	tccgtgaaat	1080
gtttgccgac	aaaggcgaaa	tgttcggctc	tgccgagaaa	gcggtgggat	gaagctcgtg	1140
gatgagctgg	cttaccgtac	cgatgtggag	aaagaatcaa	aaagatgtcc	caacgcggag	1200
agaaagatga	acttcgggtc	gtatcctttc	tcagggtctg	gccaatggcc	cgatgaacaa	1260
aacgaaaggc	agtcgatcgc	cgttctcttt	gccgaagggtg	aaataacgga	agaaataata	1320
ataaangccg	ttcgacactg	acggtagctc	catcacacaa	gaactcgcca	aaaaatcaag	1380
gcagcagccg	atgacgatga	tatcaaagcc	gtagtacttc	ggtcaattct	ccgggaggta	1440
gtgctttcac	ttccgaacag	atatggaagc	ggtagccgat	ctcaaggcca	aaaagcctat	1500
cgtggctctc	atgggcgact	agcagcctcg	ggcggatact	acatagcctg	cgcagccaac	1560
agtatcgtgc	agagcatacg	actctgaccg	gcttcatcgg	catattcggc	atg	1613

(2) INFORMATION FOR SEQ ID NO:1288

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 747 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...747

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1288

taatcaccgg	agccacatcc	ggcatcggtg	cagcttcggc	tcgccgcttg	catcgctcga	60
ttataacctt	atcatcacgg	gacgacgctc	cgaacgttgc	aaaacattgc	cgatgaaatc	120
agagctgaat	accctgtcga	aatcctccgc	tctctttcga	tgtccgcaat	cgcaagaag	180
tagaagccca	tttgggaatt	tgcttgatcc	ttggcaggcc	gtttccgtcc	tcgtgaataa	240
tgccgcttgg	cagcgggact	cgaccccata	cagtccgggtg	acattgaaga	ctggaacgta	300
tgatagacac	caatatcaaa	ggactcctct	acgtaactcg	cacatcagcc	cgggtatgat	360
agcccgaagc	gccggccata	tcattcaatat	cgggtctattg	ccggcaagga	agtttactct	420
aacggcaatg	tctattgtgc	ccgaagcatg	cgtagatgc	tcttttcgaaa	gcgatgcgta	480

tagatatgct ccttatggca tcaaagtcac acagatttgt cccggagcag tggagacggg	540
ttctcgctgg tgcgcttcca tgatgatcag gccaaggccg atgccgtgac aagggttca	600
ctcctctctg tgcgaacgac atagcggagt gtattgcgcc gtactgaacc tgcctgataa	660
tatctgtatc aacgatatgg tggtcagccg aagcgcagcc ggagcggac acttttcaa	720
caagttgatc acaaaaggcc aaacgat	747

(2) INFORMATION FOR SEQ ID NO:1289

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 670 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...670

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1289

atgatgcagg acgcgattgt cggctgtttc ttgctccctg catgatgcag acgcgattgt	60
cggctgtttc ttgctccctg catgatgcag gacgcgatgt cggctgtttc ttgcttcctg	120
cacgatgcag gacgcgattg tcagctgttc ttgcttcctg cacgatgcag gacgcgattg	180
tcagctgatt cttgctcctg cacgatgcag gacgcgattg tcagttgatt cttgcttcct	240
gcacgtgcag gacgcgattg tcggctgatt cttgcttcct gcacgatgca ggaccgattg	300
tcagctgatt ctgctcccat caatgcgcta actatcagct attgcaacta ttttatagga	360
cttttattga agtcttttgc cgcagagctg atcttaagtg ttttccagat tacttgaggt	420
ttgcagagag atcgcatgaa gtctcctttc ttcgtaaat caatgcttgt gtctgtcttg	480
atcgatatga gaggtgggaa gggtattgtg caacagtctc aaaatgtgaa gacgctcgga	540
tcgggtcaaat gtttcgacac gattactgat ttttgacctt tctgagtaca actttttccc	600
gtacacatca gaaatgatgg tgtacagatc ggatgaaagc cgtttgccga ttgtggtagc	660
tttcagccgt	670

(2) INFORMATION FOR SEQ ID NO:1290

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2736 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2736

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1290

aaaagagacg	acaaaaatta	ctgcaatacg	cataattgat	ttatggctta	aaaagggggtt	60
gttgatgtac	attccgtact	atgggcgcaa	agataatcca	atcccaattt	tgccgacctc	120
taaaacgctt	tgagaatgat	atattattatg	acgtttttgga	agcttcttcg	atcaggagag	180
gattgcggtc	aggcgtttgc	gaggttgtgt	ttgacgggcg	gaaaatgccg	agtggttttt	240
gttaatttgt	tcattcctcaa	tcattaacag	cttcgcttat	gaaaaagata	ttatgacggt	300
gacccctcatt	tgtattttat	cctcttttcg	gtgtggcgcaa	gtggagtgcc	acgaatcgat	360
gatatgagag	gaatgcgtat	ggacaccgtg	tcaagaaaat	aaaggattat	gcacaacggc	420
ggttctttta	taaggtgggt	ttgtggaaga	taccctgaag	cgagaaaaga	aaaccgaggc	480
gcagtgtgtg	tggagatcgg	acggcacggc	agcagcttca	aggatttgta	tcagttagct	540
gggattcttt	gaacgatgcc	gttaccggcg	gaaaagggtc	gatgatgggc	tattcactga	600
gggtgccggg	ttgggtgaaa	agataaagtg	gagaatatcc	tgctgaaaagg	gtatcctgaa	660
ggagcggacc	ggcatcaaca	agagggtccat	tgacaggtcg	gtatgagtat	gaatgtccgt	720
cgccgtcttt	cgattgcaga	tcggggaaga	gaccgaagag	atcatggaat	acacttgccg	780
aaagccacct	gccaccacag	cggacgggat	tatacggctt	ggtatacccc	aggtattgcc	840
ctctcggatg	ggcncgtaca	tttttcgggg	attgcccggc	ctattgtggc	catcgcttcg	900
gatgatgggg	aatatgcatt	cgaacttaat	gaatgcaggg	ggagattact	ttccccctac	960
ctatatttct	gtacgacaaa	aggtgcaaaa	gtattcgcgc	gaagaagtac	gcaagattat	1020
ccgaaacatt	cggagaatta	ttccgagacc	atcatcaatc	aggggaagatt	caggcttaga	1080
atccggagga	tattcagcgt	atcagaaaat	tgccgtacaa	tcccttgaga	aagaatgaaa	1140
acaaataaaa	cattcagcat	gaaaaggaca	cttttgtcct	cgcattcctgc	ttttttatga	1200
gtatgagctt	catacaggca	cagggtccacg	tatcgtgggc	gcagaaggga	tgccggtaga	1260
tactgtgccc	aagagggtgga	ggactatacc	aaacggcgat	ttttttacaa	agtcctcttt	1320
gtgaagatac	cacgaggcga	gacaaagaaa	cccaagcaca	gtgtgtattg	gaatagggca	1380
gcgagggagt	tgcttcaaag	actttttacga	gtatgcagcg	gctcggtgaa	tgatgccgta	1440
gctcgggaaga	aagggactgc	tatggagatc	tttcgaaagc	ttatgattac	gtcaagaaga	1500
cccaatggcg	gactcccgtc	ttaaaggcta	tccatcggga	caagattatc	atcaatacgg	1560
agatccgaag	tcggttctta	tgaatacggg	tgcccgctgc	cgtctttcga	ttggcagtcg	1620
gggaagagac	caaggagatc	atggaataca	cttgccgaaa	ggccactgcc	accacagcgg	1680
acgggattat	actgcttggt	atgccgagga	tattgcctct	cggatgggccc	gtacattttt	1740
cggggattgc	ccggcctgat	cgctcctatcg	gttcggatga	cggagagtac	gtattcgaat	1800
tgaacggaat	gcagagatta	catttccgtc	tccgatttat	ctcaagaaaa	atgcctttac	1860
gaagtcgggt	cgcgtgaaga	gatgcgcaaa	acgattcgtg	atatccacga	gattatgccg	1920
aagtcgtggc	caattcggcg	gcttttgtca	attccccgat	cggtagact	tttctcatct	1980
gccacctcag	ccgtttaatc	cattggaggg	gaataaagca	tgatgaatag	ggctgtcact	2040
tcgatttttg	cgtatttggg	ctgtgcgtgg	cggggctggt	gcctgtcgtt	gctcaggaag	2100
cgaccggcaa	atgcttgccg	gtcgtgtgat	agatgccgag	agccaggagc	ctcttgccgg	2160
gcagtgtgcc	aactcatgga	tgccctccggc	aaaccgcttg	ccttctcctc	tcgaaagccg	2220
acggctcgtt	ctctctggag	aaaaaagccg	gcggaaactc	cttagcgtaa	gatatatggg	2280
gtataggaag	atgagcaaa	ccacgatgcg	gctgctcctc	cgtgctttt	cgctttgggt	2340
ccgtccgacg	tcagctcaag	gaagtgggtg	tacgcgccga	accggtacgc	aagctgggag	2400
aacgattgcc	tattcggctg	cggctttcgt	ggggccggac	gatcggtatc	ggccgatctg	2460
ctgcgcaaat	tgccgggaat	agaggtctcg	gcaaaccggt	cgtcaaatat	cagggcgaa	2520
ctatcacaca	tatgtatatc	gaaggcgtga	catgctgcaa	aaccgctaca	atctggcctc	2580
ccggaacatg	cctcaagggc	ggtgaaaaca	gtggagggtg	tggaggggca	tcagcacatc	2640
aaaacgtgcg	ggagacagtg	ccggagaaaa	gggctgcact	caatatcaaa	ctccaagaac	2700
gcttccaagg	tgctgccctt	ccngaanaag	ttaacg			2736

(2) INFORMATION FOR SEQ ID NO:1291

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 830 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...830

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1291

gtggtcgatg	ataacaaaca	tgtactgacg	gctttgaaat	tgctcctgag	gggagtttcg	60
agaccgtgac	gctcctacct	tcccccaaga	cactgcttcc	acgatcgtag	aggtgcatcc	120
ggatgtactc	ctgctggata	tgaattttct	accggcatca	atacgggtaa	tgaaggatta	180
tattggctgg	atcaggccgt	agccgtttcc	ctgacctccc	tgtgggtactc	tttaccgctt	240
atgcgacatt	cgtctggcag	tgggaagcctt	gaagcgtgga	gcaagcgatt	tcgtgtcaag	300
ccgtggaaca	acaccgagct	gttggagtcg	cttcgcatgg	cgagaataag	gccgcaagca	360
ctcaagtgcg	ggctacacct	aaagaaggcg	atcggtattt	ctcagcaaaa	gcaaggccat	420
gtgtgaggtg	ttggagctgg	cggtcgtatc	ggcgatactg	cagcccatgt	cctcattacg	480
ggtgagaatg	taccggcaag	ggcgtttttag	ccgagtatat	ccatgcccgt	tctcctcgtg	540
ccggcagccg	atgctgactg	tggatatggg	agctttgagc	gagacgcttt	cgagagcgaa	600
ctgttcggcc	atgtgaaagg	agcctttacc	gatgccaaag	cgatcgcgcc	ggcaagtctg	660
agacggcgtc	cggcggcacg	atcttctgga	cgagattggc	aatctgagcc	ttgccttgca	720
agccaagtgt	ttggcgctact	acagcaaaaa	gtgggtgacc	gtgtgggcag	caatacacccg	780
atcctgtgga	tgttcgtgtc	atctctgcca	cgaatagcga	tttgcccttc		830

(2) INFORMATION FOR SEQ ID NO:1292

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2389 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2389

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1292

acggatcgta	agaaaccaga	tttgaaagaa	ttgatcatca	accgacttgt	accgaaacct	60
cttcgtccgt	tatgcgccac	atatctcggg	tgacaaaaga	atcattcggt	tatccggatg	120
gaccaccgct	gaaaaagccc	ttatcgtctt	tttctctttc	tcgtcaatgc	tctctttcaa	180
tacaaatcaa	tgagttaata	ccgttggtaa	atcaatgtcc	ggcatatctc	acccaagga	240
gattgcgaag	aaagaggaaa	aaagcagcag	atctgtaagc	cgggttctgt	actccggcca	300
cacgtagcca	gagcgtctgt	catttatctt	ggccgtgcgt	cacgcatggc	tccagcgatc	360
tacccccggg	catcggggcg	gccaccctac	atcgccggta	tacatgatct	tacaacccat	420
cagacgtacg	gcatgcagcg	taccgctgca	tccggtaggc	tcttacccca	ccttctcacc	480
cttaccctcc	cgtagtcctg	accgaagcac	agacaactca	tggaaaatgg	cggtcattcc	540

ttctacgctc	ctttaccctc	acgagtaact	tcctgttagg	aaggatgggc	tctgcgttgc	600
ccggacgttc	ctcccactct	cgaaagagtg	agcgacaacc	gatctgctgc	taatcttttc	660
tttcgtcttc	tatatcttat	ctatgtccac	ctctacgacc	ttggtcggat	caagatgttc	720
attgcgatag	tccactgtc	taccactcgg	gcagccaatt	cgcggaaagc	aattccccatc	780
atcgatcatc	ccgaacagca	acgggtattc	cttcgtcccc	gctttggcat	atacctgcac	840
cagcggaaatc	tgtccgagca	agggaatatt	caactcctcg	gcaaattctt	accgccatca	900
cgcccgaaga	tgtagtattt	gttctgtggc	attcggccgg	tgtgaaccac	gacatgtttt	960
ccaccaaaacc	gagtaccggc	cattgatctt	ctctccgaca	aacatactga	ttcctttccg	1020
agcatcagca	aggctacgtc	ctgcggtgtc	gtcactacaa	cggctccggg	aatagccacg	1080
tctgtacaag	tgtcaggtgg	atgtcgctcg	ttcccggagg	catatcgtca	ggaagtagtc	1140
caactctccc	caattggcat	cgcggataag	ctgtgtaggg	cattgcctgc	catacttccg	1200
cgccagagaa	cagcattgtc	cggatcacga	agaatccgat	agagaggatt	ttcacgcca	1260
tcacctcttc	gggacgatca	attcgcgtcc	gtccacttct	tcaagtacgg	gacgtgactc	1320
ttccagtggg	acatcttagg	catagatggg	ccgaatatgt	cggcgtccaa	aatcctaccc	1380
gatagccgga	tttggccaga	gagacggcca	gattagccgt	acggctactct	ttccgacacc	1440
gcctttgcct	gagaaaacag	caatgatatt	ttcaccgccg	gcagaagttt	ggccggagga	1500
gcaggatttg	cctgtttgcc	ttgacagaga	tattgccttt	gatattgacg	tcttcgctga	1560
tatatgtcgg	atggctgatt	cagctgcttt	gaccactgat	ttgatgaatg	gacgttgct	1620
ttgtcgaaata	tgagtgaata	cgatacctta	ttgccatcga	ttctgaatcg	tcctctacca	1680
ttccggccga	aaccaaatct	tttctgttcc	ccggaagcga	actttaccaa	gggcttcgag	1740
aataagattg	ggatataatg	ttactatgcc	atgttctgag	taggttattt	attaggaagg	1800
aactgcctga	ctttttctgga	gcgattgtaa	ctgcggtagc	tgtcagggtc	gatttcaata	1860
tcggtttctcg	atactcgcag	tcaggttctc	ccaagccaaa	gctgatgtac	tgatcgtcag	1920
acctcgttcc	agccactgtt	gttcgtaata	tgttcggatg	cgaggatttc	attctctacg	1980
catcctttgc	cgtacagatc	atccgttatt	cgtgtacggg	caggccgttg	agttcgacca	2040
acgccttcgt	ataggtatga	ggaaagggct	atccgttttc	agatggatac	gtccccccct	2100
ttcgagtctt	tgtcatagag	cgagaggaac	cgcgttccgg	tcagtcgctt	gcctacttct	2160
tcactcgcgg	atcggggaaa	gtgatccata	tttcggctac	ctctcttcgg	caaagaaccg	2220
atccaaaagc	tctatatccg	tccgaaggaa	agctcgttgg	acatcccttc	ttgaagagac	2280
tctttggcac	cggcccacat	gcggctcctt	tgatgtcgat	gccgataaaa	tttttctccg	2340
gaaaccgttt	gccagaacct	accgtatatt	cttccttctt	ccggaaccc		2389

(2) INFORMATION FOR SEQ ID NO:1293

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 738 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...738

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1293

cttatgggaa	tccctccgaa	tcatagttcc	cgaggagaaa	agaacattat	cattgccggg	60
gattaatacc	tgcgatttat	agcgagtctg	ccggcattca	atcttcctct	ttaggatctt	120
acatcacatg	tcacgttgca	gaaattttgc	atttgttggt	tctaaaaacg	tggcgcgtaa	180
actttttcat	tttggccgag	aagtaaaaaa	atctcgagcc	aaaacgaaaa	aaatcatgcg	240
ccacttattc	cataaaatcg	aaccgaaatc	aaagtgtttt	aggctcgtac	tccgagacag	300
tagttcacia	gcatacagga	gaatagcatt	gatgtggaat	caagtatctc	aatattgaga	360

gcgttcgatk	ggtcaaaaaga	aacactctat	ctccaaaatt	caaattttaca	tcggttttatt	420
gctgctcctt	ttgcaaaagt	gtttgacaaa	tcgtatgggt	agcaaattgc	ttagatgaaa	480
aaaaggataa	aggattagtc	tggttgcat	tttttattta	gttttgtggc	tgtccgtata	540
tagagcagtt	gtggaagt	cgtgactt	gtctaaggcc	ggtagcgggt	tttgagactt	600
cccttgggtt	agggtaaaa	cggagaagaa	aagaaaaaac	atancagtaa	taattttaag	660
tttaacgcat	aagaaaagtc	tatgaaagaa	tgacgctatt	cttcctttgc	ttgctgacga	720
cattggtggg	ctatgccc					738

(2) INFORMATION FOR SEQ ID NO:1294

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 386 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...386

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1294

atcgtatcat	tcctaattcta	ccggatagga	atacttttct	tctgaaccga	taagcccata	60
gatatgatac	agaatatcct	cacagccata	acgggtatgt	cgtcctcggc	ctgattat	120
atcgtttggg	tcgtctctgg	aagcgaaaga	ttcgggtgga	gcatgctccg	gttggttcac	180
caaaccgat	tgtgcctatc	ttccaaggcg	acagagaaga	agaacaatcc	atcatccctc	240
aaataaaact	tcataaaaac	aggacggcaa	tactatcccc	tcagtatccg	gcaggaatct	300
tctctatcct	cattatttta	ttgatagtct	ttgctcta	accgcttggt	acaacggcat	360
gtgggttttg	gtagctgcct	tgtggg				386

(2) INFORMATION FOR SEQ ID NO:1295

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 943 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...943

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1295

aattggagaa	tagtgctgca	gcagcagtga	agcctttacg	gacagatcca	tgggaagggca	60
gattcaatta	caaaagacca	agcgcgaatt	caaaggaccc	tgactttggt	ggttttccct	120
tttgtcaaga	agtctcgaaa	aagtcccaag	cgactgccac	ggaaatagga	gaatggttgc	180
ttgcaaacga	gtcggcgtat	ctgccatcga	agtggtaaag	ggctttctca	atctgaccat	240
tgctcgaggg	tatggttgga	gctgctgaac	gagatccgag	cggatatcaa	cttcgacata	300
aggtcgctac	agaggatagc	ccgctggtaa	tgggtggagta	ttctctccga	ataccaataa	360
gccgttacac	cttgacacg	tacgtaacaa	ccattggggt	atagtctttc	cgagatcatg	420
aaagccaatg	gctatcgtgt	gtgaagacta	atatcgtaaa	tgaccgaggc	attcatatct	480
gtaagtccat	ctcgcttggc	aaaagtgggg	agatgggtgtg	acgccggaga	aggccggtag	540
aaaggcgatc	atctgatcgg	agacttctat	gtccttttcg	ataagcacac	aaagccgaac	600
tcaattccct	tatggctgaa	ggtaagagca	aagaagagcc	gaagccgcaa	gcaccctcat	660
ggctgaagct	cgtgagatgc	tacgatgtgg	gaggcaggag	acgaaaagg	cgtcgatctc	720
tggcgtacta	tgaatagtgg	gtatacgacg	gattcgatgc	cacatacaag	atgatgggtg	780
tagattcgac	aagatatact	atgaatccga	gacctatctc	gtcggcaagg	aagagtgtctg	840
aggggtttgg	aggaaggcct	tgtttgtcaa	gcattccgat	ggttctgtat	gggcggatct	900
tgacaaagga	tggcttggat	gaaaaatgct	ttgcgtgccg	atg		943

(2) INFORMATION FOR SEQ ID NO:1296

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2483 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1296

tgagttgagc	ggagagaatc	acccgatcaa	actccgnacg	tgtctggtat	tatacccgat	60
cttccattcc	gtggatgccc	gtagccgccg	gcgcgtttgt	cagaaatgaa	tgggaagagg	120
agacgagggg	aacggagcga	gctttccccc	catattccat	gaagctgtgc	gaacccttgc	180
gaatggcttc	gtaagcccct	tgagtttgat	attgaacatc	tccgccccac	gaaacaaatt	240
gcgatgggtg	aaccgagaga	caaagccgcc	ccgaagtctc	cagcgggaatt	ggtgcgagga	300
cttcggcttc	gaacgatttg	ctcttgcccg	gaacggtaag	aattagcagt	ccacaaggcg	360
agagctatcc	gccagagcaa	tctcatcctt	acattgtgct	ccacaaatcg	gatattcacg	420
ttccgaacga	tagggagcgc	atcagcttga	tataagagcg	ttccacatca	tcctcgcaga	480
aaaaagctcc	ggtgtaacgg	acaccgaccg	cgtgagagcc	gatgcccgga	tataacgtcc	540
ctactcccat	agtaaacagt	gtaatcgcca	cgcgaaatcg	aatcgatagt	ggcagctcct	600
gaactctgaa	gtccgattcg	agaggatcat	aatcgggatg	aaagaatacc	ctgccgatcc	660
gatatggata	acgcccgatg	ccattgccac	taatttcaga	tcggcagatt	tcgtaccgga	720
tcctcctgaa	acggtgtatc	tgcttcataa	taaacatcct	cggcggagaa	cttcagaaag	780
ccgtgttgcg	catatgacga	gctatcgcc	ttctctcttc	atcgagtacg	atggcgacaa	840
gggagaaccc	tcgctgatcc	cgaccttgta	tgccgaagga	aggaattgcc	aagcgcaacg	900
ggaggaagga	gtggattctt	cacatccaaa	gcataattgcg	tatataataa	cggcttccgg	960
gctgaatcag	ataagtaatg	gagctttctt	gtacaagccg	gtgtctacca	cggcacgagc	1020
agtagcatca	gaaagccatc	gccggccatc	gcctttgcca	gacggttggc	agtacgatgg	1080
tgaggacaga	atcgatgagg	acaggcgggt	cgcccatctt	cgggagcaac	ggttccacca	1140

gctgttgctg	ttcggattcg	agctgctata	gacgcgagta	gccagcgagt	catccccgaac	1200
agtctgtaat	tgggttgctg	gagggatagt	cccgaatatc	ttccggcaga	gcgatactgc	1260
ccgtttcgtc	tgcgtcgta	ccctgtctaa	tagtctgcta	ccgtccggca	cataacgggt	1320
gacgagcagg	aggaagcaag	catgaggagc	aagcagccgg	caatgccgat	taataaccgaa	1380
cggaatgcga	ggacatagga	aaacggatat	acggggagag	aactatcggt	cgttccagat	1440
acgccaaactg	cacaacgcct	gtatgagcag	atctccaatc	cgttctgcac	agaagcaccc	1500
tgtgcttgag	cgcgatgcag	aagatcggtt	cctgcggatt	atagatcaga	tcataacaga	1560
gatgctctca	cctataccct	cgaacggaat	agacggacat	tgggtctatat	gtggataata	1620
cccaccggag	tggcattgac	gatcagcttg	tgccgttcga	taatctcggc	gtcagatccg	1680
aatatgcata	cacaccggga	gccgaaggcg	tgcgatgacc	tgccgatgta	ctattcccat	1740
cttcttcaga	gcgcgcatca	cagcagagct	gccccacccg	atcccaagac	gagagcttgc	1800
gtatgccacg	gcttcggatc	agctccaggc	tatcggcaaa	gcctttcaca	tcggtattat	1860
aacgacgaga	tggggacgac	gaaagcgcg	acgttctacc	cgaatcgat	tacggctccg	1920
gtcaattccg	cttcctcgtc	tatccgatcc	agatagcgca	cacctccact	ttgtacggcg	1980
atgtcacgtt	gaacccctga	agagagggag	gagcgaaagc	agactcttca	gttgggagag	2040
cgactccaga	gggaaaagtc	gtagacggca	ttgattccct	ccgtcttgaa	tttggcggtg	2100
aagaattggc	agacagcgaa	tgagccagtg	gatagccgat	cagaccgtac	tttttctttc	2160
agtcccata	aaacggttgc	cacctccaac	gaaaggctac	gataaacgct	tcccgaaatc	2220
cgacagagag	catcagggtcc	gccagttctt	cccgtgaggc	atggctgcta	tcgattcggg	2280
aagataggta	taggcttccg	catctgtgac	aggaaacgac	cgacaaccgg	tatcacatgc	2340
gaagcataga	agtgtagccc	tgcttcagg	ggaaactcac	cggacgggaa	agctccagta	2400
tatcagagga	gcaccctcat	tgagcacacg	atacatattc	tccagaccga	cttgatattc	2460
tgaaagtgtg	gcaagccgaa	agc				2483

(2) INFORMATION FOR SEQ ID NO:1297

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 187 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...187

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1297

ggcgatgatt	tgtgccggac	cggctttgaa	aatcttttagc	actctgtcca	ctcatccggt	60
gtcgggtgtga	gttcgcttgc	accgatgggtg	cgggcatctt	gacttcgtcg	atcatgaaat	120
tcagcaactt	ggcttgctga	aatcgtcgat	tcctacttgt	tcgatcatgt	aagttttgac	180
ctataga						187

(2) INFORMATION FOR SEQ ID NO:1298

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 915 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...915
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1298

agcgcaatct	gaatacggac	atcaaggtag	accccaacgc	cgtagtgata	tatcgaaaga	60
cacggctttc	gtagacgaaa	gcggcaatat	cacgacgaa	ccattacgcg	tccgcttagc	120
agcgaatacg	attttctcaa	cacatactcg	taccgatcta	tcccgatgag	acctgctggg	180
taaatgattt	ccccaagctc	gtaccgagat	ttatacgaga	atgtatttca	atcacccggg	240
ctacgtgatt	atcccgtagt	aggtatttca	tgggaacagg	ctcaggcggt	ctgtcgtggc	300
ggtcggaatt	cttccgcaaa	ggtattcgct	tgcctgaagg	acaatcatgg	acgacttccg	360
tctgcccact	gaagccgaat	gggaatatgc	tgccgaatgg	gcgattccaa	caataaatat	420
ccctggagta	ccgaagactt	gggacaggac	ggggttgttt	cttgggcaac	ttcaagcccg	480
gggagggaga	tatacggctg	acggtcattt	gataccgtcc	cgcgatatcca	gtttttcgcc	540
aatgacttcg	gcttgtacga	tatggcgggc	aatgtggccg	aatggaccgc	acggcatttt	600
cggagtccgg	actcaaacaa	atgtcggaca	tcaatccgaa	ctggaataca	aagctgcgct	660
cacggatccg	tacatcctga	agcaaaggta	gtacgcgggt	gttcgtggaa	agatgtggcc	720
cgcttcaccc	gctcgtact	cgtagccatg	aataccagaa	cgtaggtcgt	tcctatatcg	780
gattcgttgt	gtaccgtact	tccattgcct	tctcttccgg	aaaggctcct	taaagttcgc	840
gtcgcaagca	caaaggaaat	aagtattcgc	ccaatctata	ttaaaacaag	gaaaaacaag	900
tattatgggt	catta					915

(2) INFORMATION FOR SEQ ID NO:1299

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 969 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...969
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1299

ggtcatactc	cagtttgcac	cgctgcggaa	accatataag	gttttgaagt	caggttggtc	60
cagtaaaagc	agaattagag	gcaatgccc	atacctcagt	agaataccat	tgctgaagcc	120
ggctcccaca	ctggtcagta	cgacgagatg	aagatacccc	aaaatacacc	gaaggctgtg	180
gccagactgc	gtctgcattg	ctgtagatcg	tatgccagat	ctctatccaa	cgatctctat	240
cgaaaatctc	atagtctcct	ttctcctcct	tcgtttagtt	tctcatcgcc	tccacgcggg	300
gattcgtacg	gctttgcggg	cgggttggtg	tcctgctatg	gcacgcttac	taccatgact	360

atcagagcta	atagggcagt	gctcaggctg	atctcggatc	gcggaagagt	gtcagcgtta	420
ttccttctac	ctgtctgctc	cgacaccggt	ggctctgtacc	caatgcgata	cgaactccat	480
cagaccaacg	cggccaccaa	gcctatcagt	ccggaaaaca	gtgtgaccac	taccgcctcg	540
tcagaatcat	gttgatgata	gctcttggct	tggctcccag	tgctttgcaa	tgccattttc	600
gcgctgtctt	tcattgacgg	tcacttgcac	gatattgcc	ctccgataat	tccgatgaca	660
agggtgctca	acccgataat	ccaaagaaaa	catccatgcc	attgaatatc	ttgtccatca	720
tttttatgtc	cgtcacgggtg	catcgacata	gggcacttcc	atatcggtag	gatcatagcc	780
cttgggaagg	ccagttggcg	attgagtagt	actttgagtc	tctcacgttc	tctagttcgc	840
acagacggca	gttcatgaca	gtgtgcagtc	cagactgaac	cttggcgaaa	atacctggat	900
agggtggcga	aggattagtt	gggctgaatg	cctgtcgcct	tgcaacgcta	cacgaggaac	960
ggatttgga						969

(2) INFORMATION FOR SEQ ID NO:1300

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1267 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1267

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1300

aagtcctccg	gagccacttc	atatatgctt	aagtcctcca	tcttgtcgag	tcgaatgcta	60
taatagcctt	gagcaaatac	tccggataga	tgtccatcgg	aaaacgcggt	catactcggt	120
gctcatgata	atagcacggt	cgccaccttg	atccgggcat	cgagtacgta	ctctttgttt	180
ttcccttgca	accaaggaaa	taagctctgc	tcattgctga	ctgacgaga	cggggtgcag	240
cccaccgaag	agttcgtcca	catcgctgcc	ttcggggatc	accgtgatct	ggtccaccgg	300
gctgacagga	aaggtccctt	ctcgcagagc	ttcttaccgg	tcacacattg	ccatcgatca	360
cacgctcgtg	agattccctt	attgtcagtc	ggcggggaag	gaagcaaaga	cattgcaacc	420
cggcataata	cggacgtatc	ctgagctgca	gcgtctgagc	cggtcatggc	aatcattctg	480
gtaaaatcgg	tttgcccgtg	agcaggaaac	gtccgatcac	gatcaggctc	gtagccttgg	540
cgctccacac	gtttcgcccc	gattgattgg	cttcgtatga	ttgatcagac	gcccacgtta	600
cctgccggat	gaggtccgtg	tacttctacg	atttctgatt	gtgcaagccc	anagatgaac	660
ccggtttcag	gcccacatac	acctttctgt	cgtgagtttg	gccaaggcat	cgatggcagt	720
ctgcaggggc	cgttctctcc	tcgaacgatg	aaatcgaagt	ccggagccaa	tggtgcagta	780
aagtggcagt	aatataaatg	tcgcgtggag	ctatatccgg	tgtagccact	atgcgtaagg	840
acgttgctta	ataaaacccc	acataccgct	cgacagtaaa	agtccttgat	ctgttcggca	900
gagagggcag	acggatcccc	gacagggaat	gctcgtattc	gttcagtcgg	tccggtttca	960
cctcgatgct	caacaccttg	gcttggcacc	gcgattcacc	gcgatcactt	cgccgctaac	1020
cggacttgta	acttcatctc	cggatatgcc	ttgtggtgca	tcaagtgctg	agccggcagc	1080
accttatccc	ccggacgagc	cgtcaccttg	gggataaac	cttcaaatcg	tcgggcacga	1140
ccgcgtaagt	aggacttttg	gcccggttcg	gncagctctc	gggcagcggt	tttcctttca	1200
gattaagtgc	aagggttttt	tttggtttta	taacttttgn	catgacacag	aattattatt	1260
tccattt						1267

(2) INFORMATION FOR SEQ ID NO:1301

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 793 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...793
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1301

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cgacaaagaa ttaagaaggc gattgactac aaagttgatt gccttttttt tgatgactgg      60
ctcaggcgctc aaatcacgaa agcaaaagag gctgtcccat agagtcaggg ggcagcctct      120
tcaggatcag tatattttgt gtctctgtta ttcgggacga gagcaacggc tatagaatgt      180
gagttcttcc ggacggaagc gcgcacgtag ctgtcgatct tctcctgctc agcctgaccg      240
taacgagata tacctctgcc gactgacgga atgaatcgtc gtcattggca gccacatcag      300
cagatggccg aagactgcat gagcagtcac ctctacaagc cgagtgcctg gaaatcgagc      360
agctcctggg ctttctgttc tgttacgaat gcatcagtgc ttcggcacgg tcggtcatac      420
gagccagagc ctcttttcac gttgcaactc tggcttaact tctgtctgct ggtactcttc      480
acggatacga cgatataagt gcctgtcgtg atatggcgaa tggctgctac gacctgcaat      540
gtgtgggtacc ttcgtagatg tttgtgatac gtacatcgcg gtagagactt cgcaggtgta      600
gtccttcatg aagccgctac caccgtggat ctgaacaagt catagacatt ctgattggca      660
aactcggagg tcatttcctt gcccatgggg tataggcatc tgccagacgg ctgaaatgct      720
tcattttccg cacgtcttcg gaagtcaatt tgcgctcgtg gctgatatcc tccagcactt      780
tgtaatatcg aca                                     793

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(2) INFORMATION FOR SEQ ID NO:1302

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1150 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1150
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1302

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agatgcagcg gttttttaag actgctccgg gcgaatatgc tgagggagac ttttcctcgg      60
aatatccgtt cccgacattc gcgcttatga gaagacacta ggccttgag ggtggaaatc      120

```

ctcgcctcttt	tgctgcaaca	gccttatacg	aggtgcggca	tctcgcactt	atcggcatga	180
ccgaactata	cagacggctc	ggtcggaagc	agtacgggag	gggctattag	cctcctatct	240
gagcctacga	ctatgatcaa	taactgggat	ttggttgatg	tatccgcacc	cggatagtag	300
gcgaatatgt	ccatgctcat	cccacgagg	gcaatgcctt	gctgatagat	tggccgattc	360
atgcttgttg	tgggaacaac	gaatagcgat	ggagccaatt	ggcgactgat	ccgatacggg	420
gagtacgaag	ctaccattcg	cttgccgagc	gattgctcca	ccacccacac	gatctcattc	480
ataaagcagt	ggctggatgc	tgcgtgagat	gggtaaaaag	caagaacggc	tcctgcttgt	540
ttccttgaca	aacatgccgc	cactatgccg	cggacagctc	tccgctatcc	atggaaaagc	600
tcccgtccga	tctgcgctct	tactacctga	ccaaaggaaa	taatctacct	ataattttta	660
tatatcattt	ataggcggag	ctgcgaaaaa	gaataagccg	agcaaaaata	cagacggaat	720
aaatcaaaaa	taaaagcaaa	tattgagtca	atatctgcct	ttttctcttt	ttccagtcgg	780
ggtgctggat	tcgaaccagc	gaccacagcg	ccccagacg	cgtactctaa	ccggctgagc	840
tacaccccg	ttgcttattg	cggtgcaaag	gtagtctttt	ttttaccct	ccaagagttt	900
cgcgataaaa	atcgaaacat	tcgtgcaaca	tttctccgtt	atctcacatg	gttctgccgg	960
taagcctatc	cctttaagtg	aataagcctg	atcttgcctc	ccagattctt	cttgtctttc	1020
atgcaaaaac	cgtcagagac	ggatattgct	tgcaggtgaa	aaagaagggt	gagtagtatc	1080
tttggaccat	gcgaccagcg	agtagaggat	ctctcgaggg	aaaccattgc	caccaccgaa	1140
taatagagtt						1150

(2) INFORMATION FOR SEQ ID NO:1303

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 548 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...548

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1303

ggcgaaatag	atgcggagct	tatcgccgat	cttgagatga	agtttgtcgc	agtaacttgt	60
ggcagaagaa	taggattggg	taccgtatcg	gcagaactaa	gctcggataa	tttcccga	120
cggtttgacc	gaagagcgga	ttgcgagtcg	gagtgaattg	tcccccatca	gtagaatacc	180
ggcaaaagca	ctgtcttctt	ggcaacacct	gtcatttcga	tcgtgggcac	taccgggtcc	240
acacctcgac	agagggtata	gcttcaagca	tcccgaaccg	agcattgaaa	tgattgaagt	300
tccggccacg	ggggcaatgc	atagatgtcc	cgtatagccg	tatccagact	gcggatat	360
tgtttgaagc	caccagctat	cgacacggta	atagcatgac	catcaagctg	agcatgatac	420
cgatcacaga	gagacgaaca	aaggggctat	tcctttcccc	tcctttccctc	cggccctaaa	480
gagccgtccg	ccaaaaagaa	atcgatcttc	atcgcccttc	taccctattc	ttctatcagc	540
ggagaaaa						548

(2) INFORMATION FOR SEQ ID NO:1304

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 707 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...707

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1304

gccccggtgaa gtttccaagc cttttattct caaaacggac aaaggtaata ggaggttgtc	60
atcgtgaaga tcaaaaatct gatcgaagga caccgagcaa catgaactcc gatttccaaa	120
cgatcaaggc cttagcccta acaaaaagaa agaaggagtt gtcgatgcat ggataaggaa	180
gaagcaaaaa gaaactatat ccacatcgaa cctgcctacc gcaactgtca gttccgctat	240
ccgggtggct tgaagacaga caataattcg ggggtgaaag aaaatctctt tggaagagag	300
tttctttctg tctcgagtac aaatagatga gaaagggaga aaacgagaat ctcggctcgg	360
tagccgacaa ctgggggcga taattctgat cgcactctct ctttttctgc cttgcctct	420
ctccaaggtc cccctcccaa aggagtaagg ggaaaacgca tgtcatcctc gaacatgccg	480
atgaactccg tacgacagac tctacaacc c gatgtacag cgtctgcttg gcaatgtcgg	540
atcaagcatg aaggagctgt gatgcgctgc gacagcgctc atcttaatag gaagagaaca	600
ctttcgaagc attcggccaa gtttccatgc agcaggcaca ccgtatcatg tcgcccgtat	660
ctcatatgat ggaacatcaa atacgccgtc ttcgccatga gtgcgct	707

(2) INFORMATION FOR SEQ ID NO:1305

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 397 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1305

cataagagca aaaacgattc gtcaattttc ctcaacccaa acatctcatc ggggaacgga	60
ttcggggatc aaaaaaagaa aacctatggca tctcgactac ttctgccac aagagaaaaa	120
tcaaggggga gccgcaaatg aaatactgcg actccccctt acttggtttg agagaaatat	180
cagatactga aagctatgta tggaagaaca acagtcctat agtcgcaata gcatcatctt	240
cttcaattat tagttgacta caactttcct tacattgcta ctcgtggcag gacttgcaga	300
ctgacaacgt agactccatc gaccaatggg tccgtcatag actacttccg gggtttacgt	360
ccaatcgaat cagaagtttt ccgctcagttg gaaaaca	397

(2) INFORMATION FOR SEQ ID NO:1306

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1121 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1121

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1306

gtatccaata	cgctcatttc	catgattgta	atcttcctgc	tactcaaaac	gccggtatga	60
aagacggggtc	ggccaatctg	atcggttata	tagcaggatc	atcaacagct	tcatttgga	120
tcgtaaatgg	acattccgga	gccggactct	tggaggcaaa	cattcgtacc	attcatcctg	180
atgttcgtaa	tatgcttgca	ctccaatacg	gacttttgat	gtggctcaac	gaataactcca	240
cctccacgac	aagtattaca	accacctgat	aggaatggcc	ttttcacca	ttataatttc	300
cttgccaata	agttcattac	attcggcaaa	gaacggtagt	gcgtatttgg	acaatagaga	360
aaactcttta	tctttgcagc	gcaataaacc	aaggggtatt	agctcatctg	gctagagcgc	420
gacactggca	gtgtcgaggt	ggcgggtcga	gtccgctata	ctccacccaa	aaagaagggtg	480
caaaccggca	tcgatgcagt	ttgcaccttt	ttcttttgtc	cccacgggat	gcttttcctc	540
cgtccctatc	tcgacaatct	tccaaaagaa	aagccgaaaag	accaataacc	ctatcagcat	600
aattacgaaa	gacagaagtg	attgttttag	aggcactaga	aggaaattgt	atcgtttccc	660
caactccctt	ttggacattg	acacagggtc	gaaaaccatg	gccaaaccaa	agtatatagt	720
ttggctttat	caaagatata	gtttggttcg	accaaagtat	atagtttagt	tcaaccaaac	780
tataagttta	gtttcaccaa	agtatatagt	ttggtttgac	cgaactatat	agttgtttca	840
ggagcatttt	gagctttctt	tcctcaagat	ataatgcact	ataatcaacc	tcttatttct	900
tctttcctgt	aggatgtcat	ttttgactgc	gcatacactt	ttgccttcog	ccatcttccc	960
gcaaaggga	tcgtaccgga	agcaatttta	cccggaaact	ctataaactc	acaatgtgta	1020
ctataatctg	ggtagatttc	ccgataggca	tgatccaata	gaatgggtta	acattccctt	1080
tcgttgggggt	tttcttctcc	ccaaatacct	gtcaaaacgg	a		1121

(2) INFORMATION FOR SEQ ID NO:1307

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 772 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1307

gaatttgtgg	gcctaagaac	cgcaatcatt	ttcataagaa	atacctccgc	ctttattaga	60
ccaggaaaag	atcgaaatga	ccatttcctga	aaagcccca	gtaagaacca	gaagtatcga	120
acgaaggaaa	caatcaaatg	atatcattcc	caaaagggtt	ttcaaaccct	cgaaagagga	180
aataatataa	tcggtgaggg	gttggaagg	tattccttc	tgaccatcag	gacggttgta	240
aatccagttc	ccgtcctgct	tttatttcgg	aagcgggatc	atcgctgcc	acatggcttt	300
tcggtctatt	aagttcgggt	ctctatgctg	actgtgataa	agatatccgg	acaaaataga	360
gttctatcct	cctgtagaat	gtataaagga	ttggagaacg	actaggctgc	tttgaggaa	420
tcttttattt	acggaaacaa	atttccttcg	gacaactttt	gcttcgcatt	aaagaattac	480
agcagcgatt	cgaagtatcg	gcacaacggg	caagtagaaa	gtttttgcaa	aatattctat	540
tcctaagggc	gtaatcgttt	tccatattat	ctctcaaaag	gtctctcagc	cctcgaaaga	600
ggaaataata	taatcgggtg	aggagttgga	aagggtatcct	ttctgaccat	caggacngtt	660
gtaaatccca	attcccgtcc	tgctttattt	cggaagccgg	gatcatcgcc	taccacatac	720
gtctttcggg	cttttggtcc	aattccctgc	ttaattcacg	gaagatatcc	ag	772

(2) INFORMATION FOR SEQ ID NO:1308

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 781 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...781

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1308

ttttaatcat	gaaatctgca	agtttcttgc	cataaagata	agaaaacttc	agattcatca	60
taggttttcg	caaactaatt	tgctcaatat	cagagagtaa	aggattctta	agggacgact	120
acatagtctt	acacagctat	ttctcgaatt	gggaagttcg	agtccgtagc	ctttcttcac	180
atcggcacct	ttcagggaat	accgaggata	aaggcgagga	taccgaacga	agcaaaaacc	240
agcatgccaa	agtatagttc	ttcggttcgc	cggctgcaac	acccttattc	gtgggtcgag	300
gatggctccg	atcacgatgg	gaacaaccat	caagccgata	ttcgaataaa	gaaaatggcc	360
gaataagccg	agccaagtac	tttggggtcg	atatcttggg	taccgacggc	cagagagcag	420
caggtacca	agagaaagaa	aacccagtac	gacgatggct	gcaatggcta	tggcaagaga	480
agaagtgggt	cgctctcaaa	ggggaaaatg	gcgaatgtca	ggtggcagat	aaacatcaga	540
ctgctccgac	aataagcatg	gtggctcctt	tcccgcattt	atccaagatg	cgccgaggaa	600
aggcgtcagc	accatggctc	ccaaggggaa	catactgaga	tacgggcagc	tccttcggcc	660
gtcagaccga	tatttggtgact	gaagcacttc	ggtggcaaaa	cttcttgaaa	ggggaaaatg	720
gcttgaatag	taaagacgca	caggagggca	acattccaga	catgctattg	ccgaaccctg	780
t						781

(2) INFORMATION FOR SEQ ID NO:1309

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 630 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
 (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1309

cctctgcttc	ccgtacagcc	gtatgtgcc	aaagcgagaa	gcctgtaatt	cacctgcagc	60
atagacattg	ggcaggggaa	tttgcaccc	ctcattagct	ttacaccttt	gccgggcaagc	120
accaatccga	gagactcgaa	tccttgcgca	cggggcgacg	tcccacactc	atcaggatac	180
gttctccttc	gatctcttgc	tttctccttc	gtattctacc	gtaacagctc	cgttgcggaac	240
cgatgtactt	tgtgcccag	gtagaatttg	attccttctt	tttcatagt	agcggtagca	300
tagctgcatg	ttcgggatcg	ataccgttga	gtatttccgg	cagatctcca	ccacgtgcac	360
ttgcggtacc	ataccgttga	agaaagaagc	gactccattc	cgatcactcc	accaccgatg	420
atgacgagag	aggctcggaat	cctttgttct	gtagagcttc	acggtttgtc	caataactctg	480
tctgctccac	ccgggggatg	gtggaataaa	cgtctccgaa	ccggtacata	gtagcagggtg	540
gcagctttgt	actgtgcttc	gcccagagtaa	tgccgatgat	gccgtctgat	cgcaccccg	600
acggtagctt	ctgccgtcac	atctctactc				630

(2) INFORMATION FOR SEQ ID NO:1310

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1371 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
 (B) LOCATION 1...1371

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1310

gatcgatttt	gttcttcg	gcgtgcggag	caatccccga	tctttcgg	agtacaagtc	60
ctgttttatc	gtgatcttat	gcagcttccg	ccggtagtaa	accgcatgaa	tgggagctaa	120
tgtagcaaat	ctatcaaggc	gtttctttt	tcattccatg	gtgattcg	agcatccgcc	180
ggatttcctc	gaactgaaac	catataccgg	cagacagatg	tacgctttac	gtccttgctg	240
aacaactg	ccacaatcgt	ctgccggcag	acgacttgac	ctacctgaag	gatctgtgaa	300
tccgactttc	gacagcacct	gtcacgaagg	ctatattacg	ctgcaacgca	taaccacaaa	360

gccgatcaga	tcaatcgacg	cgctttggaa	gcttacctgc	actgccccat	tcctaccaag	420
cgatcatcaa	gggcgatttt	cggaacatct	gtatcctttg	gagccgacga	tgacgttgaa	480
agaaggtgcc	gagtgatgtt	cgttcgcaat	gatactcgcc	aacctagacg	ctactacaag	540
ggaaaatagc	cgtagtccac	tccctttctc	cttcctcggt	ggtcgttcga	ctgacggcgg	600
agagcttata	gaggtagagc	cacacgagtg	gaccaactcc	gctactccgt	gaacccccgag	660
accaatgccc	ccgaacagga	agtaatggca	gcttccgcct	ttttccgctt	cgagccgctt	720
gggctatcac	cgtgccaaga	gccaaggact	gactttcgaa	cacgccgcca	tagatctgga	780
aggttcttcg	ttccccggtc	ggcctacgta	gccctgtcac	gtatgacggg	cccgaaggaa	840
tgatactgct	ctccccctcc	gatctgcgtg	ggttggaaac	tccaagaac	tggtcgaata	900
tgcaagacg	aagccccgacg	aaaaagaact	cggacttctt	tgcaggaaaa	cagtcttatc	960
tattggaagc	agcaatccga	gaggcttttcg	actggcagag	cttggtgaat	atatggcaca	1020
aacacagtc	agctatcg	aggagagcga	gctgagcagc	aaaagccatt	acagcgatga	1080
gcagccgaac	aatcggccaa	gatagatg	atcacggaag	tagccggcgt	tttcgccggc	1140
aacttgccgg	cctttggggg	cagtctccgc	ttggatcggt	gccgtcaaag	agcgaatcga	1200
caaagccgtg	gactatttcc	tgccaaactt	tctgccatag	caggcgaaact	ttcctccacg	1260
atccaagaag	tcggatgctg	aaaaaagcca	aacagtttgc	gaaagaactg	ctcgagctac	1320
aggcaatctt	cataccgccc	tgtaccgcct	gcttcgctta	cgagccgttt	t	1371

(2) INFORMATION FOR SEQ ID NO:1311

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 714 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...714

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1311

acgttttttag	gagcatgaaa	caaaaaattt	cacgaacgta	aatgggacga	tcgaagtttt	60
acttcgggtct	cgtttttcat	ctctattcgc	ctatgaaatc	ctaaggctct	cttttagaca	120
aaaaatcttt	ggccaaaatc	cttctatggg	agcatcgagg	aaatgaagtt	gcagtcctcg	180
gtcatatacc	taatgaatag	gggagtggat	cggatcggtt	tgctccctct	cgaagagagg	240
tttcttccc	tttcgggtctg	ccttatgaga	attattcgaa	gcagtcggtg	gcggtttaag	300
gtgtttcata	tacctttg	ctgcaatgca	atcataaaga	ctgtttctcc	atgttgga	360
agctcattat	tctggatttc	ggttctcaaa	cccacagctc	atcgccagac	gaattcg	420
gctgaacacc	tactg	cgagg	ttatccctac	aacaaactgc	cggaagacct	480
cgaggcatca	cctgtcgggg	agcccttatt	ccgtgtatga	cagcaaggct	ttcgtatcga	540
ctgagccgaa	ttacgggcca	agttgcctct	ctttgggtat	ctgttacgtg	cacagagcct	600
tgtccatcaa	gcccgggtgca	aagtagaagc	cgtgcgaagt	cgcgaaatag	ggcgaacaca	660
tctgaccctc	ggcagcctga	tgatgcctgc	tgacaggcct	gcaatccggc	ctac	714

(2) INFORMATION FOR SEQ ID NO:1312

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1312

gccgaaggat	tcgacgggct	gacccctccct	gcggaaaatg	cacgtgaaga	gccgtcgtga	60
acaacctcaa	tgtctatggc	gtgaagcata	ttgcagaatg	atcagccatt	tcaatggggg	120
cgatcagcta	cagcccacta	tagtcgaacg	cgcagggaat	ttttcgacca	tcagcagcag	180
gtgtctttcg	acttttggag	gtgaaggggc	aggagaaggt	caagcgcgcc	ctcgaagtgg	240
cggcccaggc	ggacacaatc	tgatcatggt	cgggagtgcc	ggcagtggga	aatcatgatg	300
gctaagcgaa	tgcccggaat	tcttcctccg	tttacactta	gcgatcgctc	gaaacgacca	360
agataactc	cgtggccggg	aagctggggg	tcattcgatg	ctcctgaccc	aacgcccttt	420
ccgctcgccc	caccattcca	ttcttccgcg	gcactcgtgg	gtggcggcac	ttatccacag	480
cccggagaga	caagtctggc	gcacaatggc	gtgctctttt	tggacgagct	ggccgagtta	540
accgctccgt	tctcgaggtg	atgcggcagc	ctttggaaga	tcggcagaca	ccgttttcga	600
gagccagaat	gacggtggat	tatcctgccg	gattcatctc	gtggctgcca	ttgaattcct	660
gtccttgccg	ctactacaac	cattcccacg				690

(2) INFORMATION FOR SEQ ID NO:1313

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 524 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...524

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1313

ggactatgcg	cacacgcccg	atgcactgat	caatgtattg	gataccatag	accactggca	60
aaatcgcaca	aggtgatcac	agtggtagga	gcaggaggaa	tcgggacaaa	ggcaaactgc	120
cgatcatggc	aaaggaggca	gcccgcgaa	ggaacgtttg	atcctgacat	cggacaatcc	180
gcgtgatgaa	gagcctaaga	aataatccaa	gaaatggcta	tcggactttc	gacagaagac	240
aggaaaaaac	actgtctcatt	actgatcggg	cggaagccat	ccgcacggcc	tgcagctggc	300
agagaaggga	gactttgttt	tgatagccgg	caaagggtcat	gaacttatca	ggaaatcaga	360
ggtgtcaagc	accattttga	tgatcgcgaa	gtgtctgcga	tgccatgtcg	aaagatcgta	420
tcgttcaata	aactctatag	acccatgttg	tactatctgt	ttgattatct	cgaagagcta	480

(2) INFORMATION FOR SEQ ID NO:1314

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1314

```
gcaccggcga cgatgacgcc cgagcaggct ccgatggatt ggatgatcaa ttctgccccca      60
gcataatttcg gcgtcccga atgggtgccga tacctacgcc aggatggcaa tgggaatggc      120
ggcttcgaat acttgcccga ccttcagccc agataagctg cggcagcaga gaaaataact      180
gtcatcacca aaccacacagg acagaatagg aggtaatctc gcgcggcgta ctgccggcag      240
gcatcccggt tcgtactctt cgcccggctt cagctcccga tatgcatttt cgggagcttg      300
ctcgttgctt gtttgttttc catataatat atgtgtttga ttgatcgttt ttgacaccgc      360
cctccgatcg caataagagg gcggagaatc gtctgaaaca aagcgctcaa atatatacaa      420
cttcggtgaa aaccggtcct tcgatcggac aggaagcccg atcattcccg gcagtatatc      480
cgtgcgatgc cttcggagtc gatagactac agaccgccgc ttctgccgcc gccttgctc      539
```

(2) INFORMATION FOR SEQ ID NO:1315

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1315

```
cagtgtttga attgactctg atatgccgaa aaatacgaaa aaagtgcgaaa gaatcaatat      60
cctccgacaa tcaacgtgaa tacaacaatc aaaagtaaac agactcttct ttatctctaa      120
```

tccctgagat	ccagaaagaa	cgcttgatg	gcaggctctc	tgacttattc	aaggcttcgc	180
tgccctccca	tacgatctgt	atagtggctt	tctcgtggca	aaacccttac	atctgaactt	240
acagcgaggg	tacagtccca	gaatttcact	gggttccctt	ttcattctac	actcatgaac	300
cggtgtagaa	aaccattgac	acggcaaaga	tattcattat	atcatactag	tgcggaat	360
tgaagaaaaa	aatatggatt	tgtttgagga	tactttcagt	atacgtcatt	aaggctaata	420
gggtgtgaaa	tgccgctgat	atattatgtg	tctgtgtgaa	ataaaaactg	aggctgtctc	480
gtcatgagac	gcctcagctt	catttattgg	taggaatatt	tgggatattc	cgctgcagta	540
ttactacaat	ccgattccaa	gcgttctctt	catagatttg	ctctgatggc	ccttccttca	600
atggtatgcg	atccgcagaa	cacccat				626

(2) INFORMATION FOR SEQ ID NO:1316

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 967 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1316

ggcttatgct	catttatagt	atagtgcatt	caactctctg	aacaaaagga	ttgaaatagg	60
aatcaggagt	acttttgaca	gataagccca	agtatgcatt	ggatgatcaa	gtctcgatca	120
acaataaatc	agtgtgaaga	tgctgtcgga	ttcagcactt	cggccgcaat	ctcacggagc	180
cgatcggagg	taatggatcg	atagcatgga	aaatatccga	aaggggatcg	tatttgccat	240
agagggcata	ctcttgccca	atgaaaggaa	tgtggactcc	ttattgtcag	ccgaacgatg	300
agctgtcctt	tgaactgtcg	cttggcagat	tccagttcta	tcgagaaaga	gggtgttcga	360
tcaaatacg	caactctttt	ctgacaagct	cctggctgct	tccgcatatc	ggggagcgca	420
gccgaggtag	atattgaaga	ccccgtatcg	gaataggggc	tgtaattgct	ctctacgtta	480
tagacatagc	atgctcttca	cgcagtgaga	gattgagccg	ggagttcata	cccggccctc	540
gaggatatta	ttagcagac	ttagcggaat	gcgtctgtcg	tcgtggagga	atacgccgga	600
ccgcccata	ggatgtgatg	ctggtaggta	tccttgctcg	tctgatggta	cgccgagcaa	660
agccttctct	gagggtatgg	agaggatacc	atcggtatta	cggatggaga	ccttctcggc	720
cggattaagg	ggccatcgga	caggtctgct	tctccggcca	ggaagaagat	catattgtcc	780
ggccgtagtg	gcgacggagg	aagttacgac	ctatttgtcc	cgtgatgcgt	gatcagaagc	840
ctctgtgccg	agaatgttat	gtccgagagg	atgatgaccg	gaaaggatat	tctcgaattc	900
gtcgaatata	agttccgagg	gattggtctt	cataagaaat	cgattttcgt	cgaataacaa	960
ccggtttt						967

(2) INFORMATION FOR SEQ ID NO:1317

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1192 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1192

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1317

ccggacgctc	cgaatagaga	tacgtgcagg	cggctgaaag	aaatcttgtc	tgcaggaagc	60
tgtagcaatc	ctcgaagaat	tccggtttct	cacctctctt	cctacaatga	catctatccc	120
gatgaaggcg	tggggcaatg	ccctgcgata	tgctccactc	gctcccgaag	gagagccgta	180
tcgtaccgac	ggcgagagc	ttgagcacat	cgctggatcc	gctctgaagc	ggcatatgga	240
aatgtgagca	atacgggtgt	ccgaggcaca	gaagtcaata	agttcgtcgg	agagagattt	300
ggttcgatag	aaccgattcg	gtatcgctcg	ataccttcca	cttgtccaga	gcacgcaaga	360
gatcgaggaa	tgtctcccc	gtactgcgcc	cgagtcacct	atattgactc	ccgtaagtac	420
gatctccttt	cctccctctg	cgctacggcc	tcagcctgtc	ggacgagaga	ctctatcgac	480
ccgtttcggc	gcgtcccgca	gctttgggta	tcgtgcagta	agagcagtgg	tagtcgcata	540
gtcctgcact	ttgaggaaat	ggcgtgtgcg	gtcgtccgcc	gaacagccgg	ttgaaatttg	600
cgaatatcct	ttgtgggggt	cgtgagaata	gtctgctggc	aaagccctgt	atcgggtctt	660
ggctgagaat	acttacgagg	tcgagctctc	atcggctccc	agtagcatgt	ctactccgtc	720
tattcgagct	atttctccgg	tttgagctgg	gcatagcagc	cggtagcatg	catcaacgca	780
ccggatgctc	tttatgtaac	ttgcggatgg	cattgcggca	tttcttatcg	gccgctccgt	840
tacggagcat	gtattgatca	cgcatatata	ggccttttcg	cctctcgcac	agggcgcaca	900
ccctgctcgg	cgagagcttt	tccgatggtc	gagtctctgc	gaaattcagt	ttgcagccaa	960
gagtcaggaa	agccgctttt	tgttttcaaa	gatgaaagca	tctgtcatac	cgcgcaaatt	1020
tactgctttt	gagactgtgg	gacagatatt	tcaggggcaac	tcacagggca	atcgcatatg	1080
actgtcaaca	cacttataaa	cctaactaac	gattgctaca	ctcggtttca	aacaagtacg	1140
aattaatggg	acctttgcac	aacaagcagg	cncctttggt	tattcttctt	at	1192

(2) INFORMATION FOR SEQ ID NO:1318

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1855 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1855

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1318

gagatcgacc	gtaagcccac	tataagtaat	caccccgata	gcaggtcgga	agcatagtag	60
cgggctatct	gctcttgctg	ccgttctgct	gagaagaggt	gcgcttctgt	tcattgatgc	120
cgatagcgat	gatcacctca	tcgaataggc	cagcgagcgt	tgcacgatgt	cggcgtggcc	180

gcgtgtgaaa	gggtcgacga	accggcaaaag	agggcgatat	tctttttcat	atttgattct	240
tgagaatcgg	gaggatcgct	taaagcacat	cctcatccac	gactaagttg	tcaagataaa	300
ctcctgacgc	tcgctcgat	tctttcccat	atagaaagtg	agcgttcctt	gatcttatcc	360
tcgcgcttga	ggctgaccgg	ctcgagacgg	atttctcctc	gtcgatcaaa	tccttgaatt	420
gctccggaga	gatttctccc	atcctttgaa	gcgcgtgaca	tcggctttct	tgcccagctg	480
cttcagcgcg	cttgcttctc	ggcctcacta	tagcagtata	tatccgtcac	cggcttagga	540
tatcggactc	ctgtttcttg	cgcccgcggt	tgggggtggc	tcggaagggt	gttttttgga	600
ttcggggcga	aggaaaacgc	ggaagagtgg	cgtttcggga	catagacatg	ccccttgcg	660
acaagggtcag	ggaagaactg	aagaaaaaag	tgatgatcag	caagcgaata	tgcataccat	720
catcatcggc	atcagggcaa	tgatcacacg	attgtagcgc	aggccgtcca	acccttcctc	780
gatatcagag	ctgcctgcaa	gaggttgaac	tcctcgttct	catagactac	cttttggtca	840
ggccgaaaca	gttgagcggc	ttaccacgca	ggctgaacac	ggctgatagt	tggcatcccg	900
acacgtagta	atagagccgc	tggccgaatt	acctcgggtg	tgaaaatgct	ggtacgctcc	960
ggttccttcg	ccttgggatc	ttgaggtgga	cggtgcagtc	acgcagtttt	ttgttggtga	1020
gattggattc	ttagctcggt	cgcggtgcaa	tttggtgatg	ccgctcattg	ctttgcgccg	1080
cgttcgctct	gctggatctt	gcgcagcatc	tcctccgccg	tttcggttgg	atatgcagat	1140
agtcgtccag	ttctttcttc	aggaagtcgc	ccacgatttt	tgtatcgtag	gcccattccg	1200
ccccatgtca	cggctaccga	gtttgtcttg	gtctgactct	cgaagacagg	ctcttccact	1260
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agactctttg	atcgtagcgg	ctacggcctc	acggaaagca	ctcagatgcg	ttccccttgt	1380
gtcgtattct	gaccgttcac	aaagctgtag	aactcatcgc	ctactgctgc	gtatgggtga	1440
cgacgatctc	aatatccgta	tcgctcaggt	aatgatcgga	tacagtgcac	cgcccgtcat	1500
attctcagcc	aaaaggtctc	caaacctttg	cgactgagga	atttcttccc	gttgtagaag	1560
aatgacaacc	cgtattcagg	aaagtatatg	tcttgatcat	cgaacgacg	aactcctctg	1620
ataccgatag	ttgcggaaga	gactgtcgtc	gggcgtaaac	cgcactcagt	accggaaggc	1680
tcaccggaag	ggacaggatc	ggtctcctcc	aagagtcggc	acgactgtac	cgtacgcgtt	1740
tggtttgtcc	atcgcgccat	accgaacgac	aaattcgggt	gagagagcat	tgacagcttt	1800
gatgccgaca	ccgtcagtc	gacggatttc	ttgaaagctt	tggaatcgat	tttgc	1855

(2) INFORMATION FOR SEQ ID NO:1319

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3755 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3755

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1319

ggcgcccat	tagtcacgag	cagtagacgc	gaaaccaagt	gatctaccct	ggtcaggttg	60
aaggttaggt	aacactaact	ggaggaccga	atcggttaacg	ttgaaaagct	ttcgaatgaa	120
ctgagggtag	gggtgaaagg	ctaatacaact	tggagatagc	tcgtactccc	cgaatgcat	180
ttaggtgcag	cctgttgatg	ttatcatgag	gtagagcgac	tgattggatg	cgagggtttc	240
accgctatca	agtccagata	aactccgaat	gcatgataat	tgaccgatgg	agtggggcat	300
gggtgctaag	gtccatgtcc	gagaggagaa	gaatccggac	cacggctaag	gtcccgaat	360
aattgctaag	ttgtaaaaac	gaagtcaaga	tgagagacag	ctaggatgtt	ggcttggaag	420
cagccattca	tttaaagagt	ggtaacagct	cactagtcca	ggattttggc	atggataata	480
cacgggcata	gcaattttacc	gaagccgtgg	gatatagtaa	tatatcggtg	ggggagcatc	540

cagcgacgta	gaaggggaaaa	gggcgacttt	ttctggagtt	tctggaaagc	aaatgtaggt	600
ataagtaacg	ataaagggggg	cgagaacccc	cctcgccaaa	gaccaagggt	tcctgatcaa	660
cgctaatacg	atcaggggta	gtcgggccta	aggataagcc	gaatggcgat	tccgatggaa	720
gaaccgggta	atattcggta	ctgatacaga	gagcgatgtg	gtgacggaga	agtgacagtc	780
cggcgctctga	cggaataggc	ggttaaaggg	tgtagatgtt	gatcggggta	ggcaatccgc	840
cctgagagtc	gaacctgaca	gtacccggag	tacaagtacg	aaggataagg	acgtaaaccg	900
gctcccaaga	aaacccgcta	agcatatttc	ttgttaccgg	taccgtaaac	cgacacaggt	960
ggttggggtg	agtatactaa	gcgctcgaga	gattcgcggg	taaggaaacta	ggcaaaatgg	1020
tcctgtaact	cgggagaaaag	gacgcctgtc	tccggacagg	ccgcagaaac	caggcccagc	1080
gactgtttta	caaaaacaca	aggctatgca	aaaaagcaat	ttgagggttat	agtcctgacac	1140
ctgcccgggtg	ctggaagggtt	aagaggagga	gtcatctcaa	gagaagctct	gaattgaagc	1200
cccagtaaac	ggcggccgta	actatacggg	cctaaggtag	cgaaattcct	tgtcgggtaa	1260
gttccgacct	gcacaatggg	gtaacgatct	gggcactgtc	tcaaccgcga	tctcggtgaa	1320
atttagtatc	ggtgaagatg	ccgattaccc	gcaacgggac	gaaaagaccc	cggaaaccttt	1380
actatagctt	tacattgtat	ttgggcatca	gatgtgtagg	aaggccggag	gcagagaagc	1440
gggtacgcca	gtattcgtgg	agtcgatgtt	aaatacggcc	cttttgatgt	ttggatacta	1500
actcgcggcg	tgcgaggacg	tgtatgggtg	gtagtttgac	tggggtggtc	gcctccaaaa	1560
gcgtaacgag	gcttctaaag	gtaccctcag	gccgattggg	aaccggtcgc	agagtgtatg	1620
gcacaagggg	gcttgactgg	gagacaaaca	agtcgcacag	gtaggaaacta	gagcatagtg	1680
atccgggtgg	tccgcatgga	agggccatcg	ctcaaggata	aaaggtaactc	cggggataac	1740
aggctgatca	ctcccaagag	ctcaatcgag	ggagtgggtt	ggcacctcga	tgtcggctcg	1800
tcacatcctg	gggtggagaa	gggtcccaagg	gttgggctgt	tcgcccatta	aagtggcacg	1860
cggctggggt	cagaacgtcg	tgagacagtt	cggctcttat	ctgttggtggg	ccaggaaatt	1920
tgcgagggtc	tgacactagt	acgagaggac	cgtgttggtg	gacccctggg	ttaccgggtg	1980
taccgccagg	tgacccgcgg	gtatccacgc	tggtaaggat	aagtgtctgaa	agcatctaag	2040
cacgaagccg	gcctcaagta	agatttccat	aaataggggtg	gttaaagact	atgaccttga	2100
taggctgagg	tgtatgattg	gtaacaatta	agccgagcag	tactaatagc	ccgaactttg	2160
tgcaccccga	aggatgcggg	atagggttgg	ttgttgccgc	aaagctgagg	aattattttg	2220
tggccttttcg	atatgtcgat	tgcctttttc	aaagtttcagg	tgggtataac	gttggggatc	2280
cacctcttcc	cattccgaac	agaaaagttaa	gcccacgggt	gccgatggta	ctgcgtcaca	2340
gtgggagagt	agacgccgcc	gttttttaag	aaagctgaga	gagagggggg	gataggatct	2400
caccctcctc	cccggaaaaa	aaagtgaaag	agagagcttc	gaatccgagg	tctctccttt	2460
tttattttct	ctctctccaa	aaatcatttt	gcttttctcc	tattcctctt	tctccttttc	2520
cttcttctct	ttctctcccc	ttgctgcggg	tattcctcta	acagatcgta	cgccaactat	2580
ctcattgttc	ggtaggtcca	taggtagccg	cggacggatg	gatagcccat	cgagacgagc	2640
agccgggtata	attctccatc	tgtgcatgat	gaactttgcg	aactgctccg	aatttttagtc	2700
tacgatgtct	gtgtgatcgt	cgtagagaat	gatccgatcg	ggacacgctg	ttccccttcc	2760
gggaggagaa	tatcctgttc	attaagaact	cgtcgctacc	atcgaaccaa	cgagacaatc	2820
gactgtccga	agtgacaaca	gaaggcgatc	gaccaattcg	atcgccctcat	ctctcgtgac	2880
gattcctccc	gcacataacg	ctcaagagca	ggctcgatgt	ccttggcgag	aacgatgtcg	2940
caaggattct	gtgcattaca	tgtccgtggg	aaagcgggtt	gtgcctgcgt	aaaattcact	3000
gccttcaggc	cggatagcca	agcggtcggc	tacggccgga	gacttccttt	gggcagggta	3060
aaaggtaagc	cagaagaggg	gtgatcttcg	ttttttgtct	cgcggatatg	accggacttc	3120
cccagcagta	catatcgact	ctgtcttatt	ctcgtccaag	gaagcaagag	ctaaatgtat	3180
aagattccca	cggtagagag	cgattcgggc	ttttgggaag	gatgtaacca	cagagcatct	3240
cgctcttcgc	tcgtgtcgta	gccacataaa	gaagattgag	gtttcaagga	gaatatcggc	3300
tctttctcgg	aaataatctg	tggcaaacat	tgttgtgcca	tctccttctt	atatctgatc	3360
ggcactacgg	gcaggatatt	gaaggactgc	gggcaggatc	gatcttgac	cagaggatgt	3420
gtcgatgtgc	gcttcgtcgt	ccagattcca	gtccaagaaa	ggaataagaa	caacgcggag	3480
cctagacctt	tcgccttgtg	aatggtcatt	agcgtgacgg	cctgactgtg	ggagcggagg	3540
aaatacggct	tttggcatgc	cccgtttcgt	cccaccatgc	aggaaagagt	gcagatcggc	3600
agatcgttcg	tgaccgaaat	cattgataaa	tccagccaag	caattagata	gggcatctct	3660
ctttcaggta	ggtataatgg	aaaaaagaga	ccaatccttc	tgccaattcg	tataaggagc	3720
gacgcgaagg	ttggcaaat	ctgcaagctc	tgcgg			3755

(2) INFORMATION FOR SEQ ID NO:1320

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 295 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...295

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1320

cggcgaatct	tcattcttcac	taagtgggtc	tacctgatct	tcaggagcag	taccagttcc	60
tgatgagtag	gaatggcttg	tttacgaatc	ggacaattgg	attctcgggg	tctatcaaac	120
tcaaataata	aggtgtgata	gccattcgag	tactttgagc	gattctttta	ctccctcttc	180
ttcttcagcg	gtgagttaac	gtactttttc	agctgggtcga	gcgtctcaat	tcgattgagg	240
acctgcaatg	ccagtcgttc	cattgctcat	cggtgaacat	cagggaaata	atact	295

(2) INFORMATION FOR SEQ ID NO:1321

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1353 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1353

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1321

tcggcatttt	cggttcgaaa	atccaagttt	ccaaccaanc	cacagacttg	atcgctcccc	60
tttgcatagc	aaatctgtga	ctgccgggtc	atccggaaca	ggaaactttt	ttcttggtat	120
cgttcaagaa	cgnaaagtct	gtgccgacga	ttggcacaag	tccttcccgg	cctgttagag	180
attgaggact	gtcagcaatc	ggactttcgc	atcggtcatt	atgacagacg	aggaagtatt	240
gaacaccgcc	aaacggtcct	tggttatgctt	aaagggataa	atccgaatcg	tgcgcacgat	300
aattgcaata	cgtagttaga	gatggcatac	gactttacac	aaaattccgc	aacagcctgg	360
agtacagcta	tcaggaagca	acccgtctcg	gctcgtagcc	gtgacgcaag	atatgctcgt	420
actcgggtatc	attcgcgacg	ggacaatggc	gcgatcgaca	tcattgcggca	ctatgggatc	480
aaacttgtagc	actcaaacgg	ttgatcgagt	tggaagccat	cgccgagagt	ttgcctgctc	540
gcctgaggga	tcgcccatct	tcaccccttc	ggctcggggag	gctatcgaga	tgccacagac	600
atctgtgccg	acatggagga	cgaggccgtc	agcccggcca	tctgttgctg	agtatcctca	660
actcgacaca	ggagagctta	gtacaaagat	atztatgaaa	caagggtataa	aatacgacac	720
cattctgtcg	gattattcgg	acagcgcaac	ccctccgaag	ggaagtctcc	ctccgaaatg	780
gagacctcga	cgggtaccaa	gacaacgact	tcgacgacga	agaggacgaa	tccctccgcc	840
ttccgggaat	agcgggacag	gcggaggctc	cggcgacgcc	ccgaacagaa	taccggcgga	900

ggcgatacta	ccaccacgac	acggagtgga	gcgacacgcc	tgcactggac	accttcggca	960
ccgacatcac	tgccatggcg	cagcaggcaa	gctcgacccg	gtagtgggtc	gggagcagga	1020
gatcgaaagg	tgatacagat	actcagccgg	cgcaaaaaga	acaatccggt	gctcatcgcg	1080
aacccggtgt	atggcaagag	tgccatcgtg	gaaggactgg	ccgaacgata	gtgaacagga	1140
aggtgagccg	tattcttttc	gacaagcgga	tcatacacctc	gattttggct	cagatggtag	1200
ccggcaccaa	atatcgcgga	cagttgaaga	gcggttgaaa	gccgtgctcg	atgagctgaa	1260
gaagaatccg	cagacatnct	cttcatacgac	gagatacata	ccatcgtggg	gaagcaggct	1320
ctgagccgga	tcgatggata	ccgtcaatat	gct			1353

(2) INFORMATION FOR SEQ ID NO:1322

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 625 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1322

tcagctggca	gctcaccctt	ttcgtcttca	tcctcctacc	gatagccggg	ggctgatggg	60
taaggtgggc	aaaactctca	agcgcaagag	tctggaaggc	agaatcagtg	gggaagcctg	120
atgagccaga	tagaagaaac	gcttggcgcc	tgcgatatcat	caaggcattc	aatgccgaga	180
aaaagatgca	ggatcgttcc	atcgtgccaa	cgagcagttt	cgccgtacga	cgatgaagggt	240
cttccccgcc	agcagttggc	acatccgatg	agcgaatttc	tcggcacagc	tacctagcca	300
tcgtactgtg	gtatgggggt	acccttatcc	tgaacaatac	gaggagatcg	atgcttccac	360
ctttatatat	tatctggtga	tcttctacag	tcgatcaatc	cggccaagga	gctgagcaag	420
gcatectacg	ccattgaaaa	gggttggcct	ccatgtcgcg	cgtggacaag	atcctgatgg	480
ccgagaacga	atcaaagatc	ccgaacagcc	ccaccccgtg	gtgttcgaag	aggaggtcgt	540
tacgaccatg	tgtggttccg	ctacggcgaa	gactgggtgc	tgcgcgattc	tgtctgacaa	600
tcccgaaggc	aagacgggtg	cattg				625

(2) INFORMATION FOR SEQ ID NO:1323

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1221 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1221

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1323

```
aatgactgtg ctacgggCGT cagacggTct ttctaacaga ttctactatt tccgcaagct      60
gctgggttatc tcgtttgttg ttgctgcggT aggccaacgc tgggctttgc catcgagcg      120
atatggcttt tctgtggtat ttctattgt atgctattgc tcaaaagaaa ttctatctgc      180
cggtaggTat tcttgtctat tggtagctta ctatctgttt cagatgacgg ggcttatcgg      240
agctgagaga ctaaagacgc tctgcataca cttaaagcagc gacttccctt attgctttgc      300
cgttagcttt gtgctgttgg cgTccgacaa gaacggaatg ggggtatttc tttctttttc      360
tttccgcttt gtattggTgt acttatectg cacattgttg tctctttgct tctgaatcag      420
tactatggcc aatccatttt gTccgTttt cttttgataa attctatctg aagactcata      480
ttccgacatt gcatcgagtt tctgtatgct ccattggacg cattttgccc atcccacttt      540
atcttcttgg gcatattcgc tatttttatg gcagtcgccc tacgtcagat ttctatcggg      600
agcaaacggT atctacggTg gaaatgatct atggTttgtt gccttgTcat gctttgcttt      660
tattacccaa agccgcttgg ccatgccttc attcccctgt ccatcatgtt cttttttttg      720
gtgCGagcct ttttctatct cagaagaaaa aacttttgtt cacctctttc atgcttatca      780
tcgtggcggT tttatcttca acggcctctt gtctcatcgt ttttttgcgg acgagagcgc      840
atgcagatgc gtgatatagc catggatgcc atcaatcggc atcatggaca ggtattcggT      900
taggcactat ggacaatata ttgcaggcgc aatcgatacg gatattttgt tgaagcatcc      960
gcacaaccag cttctggccg tggTatgcag cttggTattc ccgggatggT tgttttggTt      1020
gtattcgtag cggTttgttt tattttgcct atcgcgatcg ccgatatgat ttctctcttt      1080
cctacctgct atcctcctga caatggcagT cgaatcccct ctgatctcgt tcgaggTgcc      1140
tatttgttgg cattttggtt ctcggtattt gccgttctcc gactcgaaag aaagactttg      1200
cttgaaagaa ttttttaagt t
```

(2) INFORMATION FOR SEQ ID NO:1324

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 655 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...655

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1324

```
tcatctcccG aaggatagac gtagctgatc atcacatgca gcgatggcga tctatgtctg      60
cccgcagagg gatgtagcgt tcgagatagg ccgaatcgaa gagacagact tcgattcggc      120
agctttgtta ttgctacagc ccaaagcgtg atcaaagaca atggaaagag tagcaacagc      180
acgctgcgca tggattcatc atagtgaag attgtaatcc cgatagattc attttactgc      240
cacaatttac gcaattcatt cggataagcc ttttttttac gcgccggTgc acatctacga      300
gcctgttcga agttattaga gtatcgaaaa ttgcttgcTt tttatttgaa tctagtacgt      360
aaaaacaact ctgctcagaa tcttaacata ttccatgcaa aagagggcct ctgtgaagaa      420
atgcttcttt aaggctgttt taatattgag caccttaaga tggTactcga attctgatga      480
ggtggatctc tcaaacggTc aaatctgttc atgtggcgga tgaactatta tctttggcag      540
```

acggagccgg tctttccatc atcgaatgag gtgagctcgg catttccctt gtggtaaagt	600
cttaatcaaa gacttattgg ggtcgatatg cagagagaaa agatagcctt atcgt	655

(2) INFORMATION FOR SEQ ID NO:1325

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1064 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1064
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1325

tgtgtgccgc atcgggtatgc cngtatttga tagcacgctt ataggaggag ggaaaaaaag	60
tgcactaccc tctcctccga gttgtctcaa atcggagaga gatagccggc ttcttccata	120
tccgaagcaa tgcaaaggac agggcgacgg attcgtgcag cagtttctact ataagagctg	180
ccgacgaccc gcaaagccgt cgagagctac gcacttctct cggtcgaggg ctttcatcaa	240
agcctcacac cattgtgccg gcgaaagagg gaaagaatat cgattgggtg gggaatttga	300
tcatgagaca aaaataagcg gtctgtacca attatttttag cgaacgatat tacgatccat	360
cctaaagttc cggccaaatc agattgcacg ggtgggtttat gcgcaagatt tttctctttt	420
gtccttcttg aaaacgtgac ggcaccgaaa aagttgatgc tcggaatcgg tcaaagtgtt	480
cgacataatt acatcagcac gatagtccat ttagagccgg tgccatagag tggagcagtt	540
ttgtagttaa tacagtgtac atttgtgtcg ataaaaggcg aacaaccctt tcgaccgcat	600
caacatgctg ataataaata aaataaaaaa gtgaaagaat ataatagaaca agcaaaaaaa	660
caatcgcgaa cgaacgcctc agcccgcacg gataccgaaa gagacgaaca actgacaaac	720
agtcacgaaa atgattagat agtgcccccg cagccgaaga gaacgacaag gtggcagacc	780
cgggtgagcag ctcacggctc agttggctgc tcttaacgac acccactgcg tttatggcag	840
aatatgacaa ctaccgcaag cggacactca aggaaaagag cgacttatcc gcaatggagg	900
agaaaagggtg ctcgtgggat ctgctgcccg tatcgacgac ttcgagcgcg ccctcagcaa	960
tctgggcgac atgtcggagc tgctgccatc aagaaggagt ggaactgatc tacngcaagt	1020
tcatggactt ctgcagagca tgggtgtcaa aagatagaac cgca	1064

(2) INFORMATION FOR SEQ ID NO:1326

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 631 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...631

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1326

ggccgatacct	gtccggcaga	tcaataatca	tctggccatc	ggtttcttct	tctgctcaat	60
atattcctcg	gtatcgtcgg	caccttctgg	gtgcgaacga	gcagcgacgc	gccgaagtag	120
gaatccgccg	tgtagtggga	tccacgacag	gagcgtattc	tcgctcatgt	tcggcgaggg	180
gattatactg	atgacatggc	tttctgcct	gcggccgtag	cccgcattgg	acgtcatgtt	240
ccatacgatc	tttgcgacat	caaggtgttt	cctctcggcc	ggggacgtct	tttgtcggat	300
tgggggtgtac	ttatttgcag	atgctgctga	tggtttttct	cggactttca	ttcccgtact	360
gcgtgctttg	cgtgtgcctc	cgaccgaagc	taccgcagcg	agtagaggta	gatgggatcc	420
attccccac	gttctcccta	tccttattat	atatagcagc	tacgaaacgg	ccgtatcgta	480
gtacaaccga	ccgtccggtc	tcgaagggca	ggagccgaaa	caggactcct	gcccccttgc	540
gtcaggcctt	tgtttgcagt	ttgcaaaccg	gaaaagagac	aaaaccttgt	tcataatagg	600
agatttgatt	cggnttccta	ccttgggggc	c			631

(2) INFORMATION FOR SEQ ID NO:1327

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3385 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3385

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1327

ggacgcgatt	gtcaactgat	tcttgcttcc	tgcacgatgc	aggacgcgat	gtcagctgat	60
tcttgcttcc	tgcacgatgc	aggacgcgat	tgtcggctat	tcttgcttcc	tgcacgatgc	120
aggacgcgat	tgtcaactga	ttcttgctcc	tgcacgatgc	aggacgcgat	tgtcaactga	180
ttctgctccc	atcaatcgct	aactatcagc	tatttgcaac	tattttatag	ggctttcatt	240
gaagtttttg	ccgcagagct	gattcttaag	tgtttttcag	attacttgag	gttccagaga	300
tcgcatgaag	cagtcctctc	ttcgtcaaat	caatgcttgt	gtcgccttga	tcgatatgag	360
gaggtggaag	ggttattgtg	caaaggcttc	ttaattagat	acgatgttat	ttccgataaa	420
gttgctatac	ctgagacccat	cctgaatcca	tcgcagcgat	gcacttgata	ccggaatagg	480
caaaaacaaat	ccggcaaaat	aggtattata	ctacagactg	caaagggata	tatatttgcg	540
ctgtaacttt	ttttttcgac	agaaccaatt	ataaagagat	cggagcgcag	atggtaagaa	600
atccggaaga	agtactcgaa	cagacctaca	gcattggcgca	agcaaatatg	ccaagacatg	660
gtatcagata	ttttggttgg	gcattcaggcc	ggagcataca	ttgctatcgg	aggctttttg	720
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ttcaccagca	ataatgccgt	actgattcct	gccgctatca	aagtcgcatt	ccgcgtctct	900
tcccactcaa	gctctggatg	gtggctctatg	tgccaacttt	atcgggtgctt	tcctttttac	960
ctatttccct	gtccatttgg	cggcttcgcc	gatgcggatc	cttggcatag	tgccatcgtc	1020
catctgtcga	agacaaaacc	ttcctgcctt	ttcacgtagc	atttcttagg	ggaatcgggc	1080

caactggttg	ggtttgtctg	gccgtctggc	tgggactttc	ggctcatact	ttacgggcaa	1140
aatgttcggt	atctggtggc	cggtgatggc	attcgtgcta	tgggattcga	acactccatt	1200
gccaatatgt	tctatattcc	actcgcatac	tgcaaggggc	ctccgtcagc	tggggcagct	1260
tcgtgatcga	caattgctgc	ccgtcaccat	cggaaatatc	gtcggcgggtg	cactctttgt	1320
cggttcttcc	acgtccatat	attcgataga	ggaggaaagt	agaaaaaagg	cttgctccaa	1380
gtggcatatc	agacaccatc	ttgcctgatg	tttcaagaga	gattggctga	aaaaaagctg	1440
acggcttacc	ggagctattc	tccaccgata	gaaaacgaat	cgtccggac	tcacgatca	1500
gcaggagttc	taattcggcg	atggtaccga	tgggcggcaa	gtttcccaag	atcgttcggc	1560
aatctttcta	gcagtcgatc	gctgtcctcc	gcactcggca	tagtccatag	ctcacgacca	1620
aattcaggct	gtctattatg	gcatggatgt	cttccgaaca	acctgctgac	gagccagttc	1680
gtgcaggaaa	tcccgaattca	tcactacctt	tttacgtgcg	tatccagata	gccttcggcg	1740
agtttcactg	ctttgccgag	catgttccta	ccgttaccga	acggacagaa	gggaagggaag	1800
ctacacaact	gaggattcgc	cgacgaaatt	gccatactgc	acaaaggcct	gtggaatgag	1860
tgcggatagg	ctccttttac	ataacgctca	ctcttggctc	ccgaattgag	gcgatatgat	1920
tggctcccaa	ggcgggtggca	ataccacctt	gcttacggat	gcaccaacga	acgcttcggc	1980
cgaaaaaggt	ttcacgactc	ccgatgttcg	ataatagaga	tgccgtcccg	tatgccgagt	2040
cggggattga	atgtctggta	gcagcctctc	ggccttcggg	tacgctaata	gtaatatcca	2100
cacctcctgc	gcatagagtc	ggcgtacctc	tgtgtcatc	attcgtcgag	gtacgagttg	2160
atagccggac	ctccgacctc	cagaccgagg	ccggggagcg	tcactcccc	accccttcac	2220
cctgcaggaa	gcggacttcc	tcatgttcgg	gattagcctg	atcgtagcgc	ataccgccat	2280
gccattggtc	acatccggat	catacctgca	tcttccagga	ctgcggatac	gacagcatct	2340
tcttctcttc	gatttccgct	atgggcagac	tgactatttc	gcccgaaggc	aattctacgg	2400
ggcttcggcg	agagagccaa	gccccatcaa	tcggtacatg	gctgctacta	tgcagcggta	2460
gctgtggtgc	cggtagtgaa	tccgcttcgg	agtgaaga	tccggcacg	aggcgttcta	2520
ccgcccgtct	caaaccgaca	ggcccggcac	gggaatgaat	gaaggaggca	aaggggggac	2580
gtacgacggc	atatatagga	tgcccatccg	tcgggcagct	tctatctttt	ctcggaaagta	2640
accgcttctc	cgctttcttt	tgtgataatg	gcacgggggc	gaacggcttg	catcactcct	2700
cgtccgcatg	cggttcgaag	aaaacgatgc	gctccgcagg	aaagcgttct	tctctgccaa	2760
agcaaccgat	tcgtctcgct	tcaatatgcg	gcaaagggtg	tgcgtctttt	ccagaaagca	2820
gccagcttgg	ggatcgtatt	catcctgtga	gcacgagcag	acgctgcacg	ccatcgccaa	2880
gcattccgctc	gcagccgtat	cgtagtttgc	acaccagacg	ataccttctt	cgcgtggagg	2940
tattgtctct	cgtatcttac	tacggggata	cctgtttgtt	cagaggcttt	gccactgaag	3000
cgtgcaattc	ttcggcgaaa	ggatgagcgg	cgtccacgtc	agtcggatct	cttctttccg	3060
acaaaacgaa	accatgtcgg	caaccgtatg	gctcctgtca	gacgatggcc	gtggctactc	3120
tggatctctt	gcagatgcct	ttggtggagt	agaaaaacgg	acttcccgtc	tcattccagca	3180
cgcgactgcg	gcacggcctt	ccgtagtacc	gccgaagagt	aggatcatgt	gcggagagggt	3240
gtttgaattc	gtcggcatac	aaccgtgaca	gcccttcccg	atttctatgg	cttctccac	3300
gactatcatc	gttgtcaggg	tcaggttgtt	ccttttacga	tttctgccaa	atgccggagc	3360
gtacctcgga	agattttttc	accgg				3385

(2) INFORMATION FOR SEQ ID NO:1328

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 614 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...614

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1328

agcttgcgac	tgatattgag	agccaagcgt	atcaagcagc	ttattcagat	atcctttttg	60
attgctttga	ccggatccgc	ttgaaatcga	agtacagaga	aagtaaggag	ccgttatggc	120
cacgggctct	cccgtctgta	gcgtataatt	gccgcgaata	ggtgccagat	ccaccggttc	180
ggggcgatga	agagttctcc	gatggtacgc	cacttgctcc	cttcaacaaa	aattgtcttc	240
agaatttacc	gaataccacg	agcaagaata	caatcatcaa	cgctcccacg	atgcgtagcg	300
gcgtacggcc	ttgatgggtca	ccggattgtt	tgtctcttcc	tgttcatatc	gggtgtttat	360
ttcttgcgcc	gatcagtatc	gacaggacgg	taagaatgta	tggcggagtc	tgcgagagtg	420
tcagctcgag	gttttgcgat	tgatggcttt	ctctacattc	agtttctgac	tcatagcagt	480
aacttcagaa	ctttgaacag	ggcacgatag	cgataatctt	tcacttgttc	ctccagacgc	540
ctatttcgcg	cacctgctcg	atggcttggt	agccgttcca	aatgttaaga	cggacatcac	600
gacgatgacc	agtc					614

(2) INFORMATION FOR SEQ ID NO:1329

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1408 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1408

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1329

tgcaggggat	gccttatgat	gcaggctctgt	ttaccggatt	tatctttatc	tcggtattac	60
gatggtggca	nctccgggag	tgccgggtgg	agccatcagg	cggctttagg	tgttttgcag	120
agtatgctcg	gtttcgatga	gtccttaagg	cactcatgat	agcattgtat	ataaccatgg	180
acaacttcgg	tacggctgta	atgtcacagg	cgacgggtgt	atctcgctga	tcgtggacaa	240
actcagatgc	gcaagaggca	ggcagtcgca	aggtagacaa	gaggttagga	agaaaagaaa	300
ggagaggaga	ctgtcggcat	gtacagatct	cctctccttt	gttatttggt	ggaggcttta	360
cgtccacagg	atggcgcagt	atatgtctgc	ccttttcagc	cgcggatcat	ggtgaggagc	420
atcttgaagc	gtttcgtagc	aggagtgcac	ggctgacgtt	ggccggcatg	atgacggacc	480
ggccggcctt	aggagaagag	gttggcctcc	gattcttatt	tccgcttccc	cttccaatac	540
tgtacgaagg	catcgaaagg	tgtgtgtgtg	tcgctcaatc	cctgccctgg	tcgaaggaga	600
agagagtaat	gttgccctact	tcgttcttaa	gtacttggtg	ctgatgattc	cgccgtcgga	660
atactctact	gatgccgata	tgtcgagaca	gtagctttgg	ggtatgtttc	ttttgtcatt	720
gtttgttttc	gattgttagt	ctgatctcat	gtcttgtaaa	cgggcatggg	cattaccctt	780
attggtcgga	gagagcctat	acgagaagag	gggtgtgcaa	acgaaaatac	ttctggcaca	840
ctctctcttt	cttgcattcg	gaaagcctgt	atctccctct	cccagcgtaa	ggaatcacgc	900
ggagaagcgg	ggttcgttag	aaagcatatt	ccgaacgaac	tccgtggctg	cctgtatctg	960
tttgtacatg	actacatcgt	ctccaccttg	ggagctacct	tgcgcagctc	gccgagcatc	1020
ttctccaaga	cggagacgtc	ttggtcggac	ggcgggaattc	gaaggcttgg	gccgcatcag	1080
gagttcgatg	gcgaagatca	tctccagggt	ttctatgata	ggaagcactt	cgttgctgcg	1140
ttagctccca	tagaaaccgt	ggtcttccgt	cccgttctgc	tgacgatact	atcgctggct	1200
gcggagaaac	agtacattct	tgttctgctc	accatagctg	cggctgcata	ctggcggtat	1260
catgaatccc	gctgtcagac	cggggattgg	ctacgaggaa	ctcaggcaga	ttgcgcaacc	1320
cgatatgagc	tgaacctgcc	nacgttcgct	gatatgccca	gttcagccag	gcatagccga	1380
aaatcatata	cgatgcaaga	agttggcc				1408

(2) INFORMATION FOR SEQ ID NO:1330

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1378 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1378

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1330

tggggattgt agccgaactg gtattgccat aacgctcgat attgaccata ctttctcata	60
tgggactccc atacgtcggg caacggcatc gatgattcga gggtggcctg atgagggtact	120
acccaagtaa tatcatcgtg cgaaagatgt tgcgctccat gatctccaca cagctgttgc	180
acatatctac gacagctgtt tgaagactac ctgcccttcc tgatacacat aatgccaacg	240
attatcaccg tttcgtgcgt agcaggacat gccgatccac cggccttcat gatcaatgat	300
ctttgccgat gccattggag tgcagcacag catccataac gccacttctt cttcggtagc	360
ctcgagcaaa acacaaccgg cgccatcccc gatagcggac aagtggctcg atcgggtataa	420
tccgtaaaag ctgtcatctt cccgtagcga tcacaaggat cttggaataa cgccccgaac	480
ggataaaatt gctccactt caagggcata aataaacgtg ggacaggctg cctgcatatg	540
aaagaaaaga tgtcgccaca accgatttca tgagcaacga tgctggcctg gaagggaat	600
gatagtcgct cgagttgggt gcaaggatca agccgtcata ctcttgggat cgataccatg	660
acgttcgaag aggtcttggt ccgcacgatg gccaaatagg aagctccttt attcttgtct	720
cgaaggatcc gacgcctttg atccccacac gggtcatgat ccattcgtca ttggtatcaa	780
ccatttttcc agatcgtcat tggttaataac atcttcaggg agataggccc caaggctgtt	840
atagccgcgt ttattttatt cataatcgaa tttgttgcat aaggacgggc accggccctt	900
tttaaagacc atatcccgcc ggaaaagatt attgtggccg ctaaaataaa aaaaaagtc	960
caaagaacag gtctaaggga tcttttgctc gttcttgccg cctaagcgac gaccggcatc	1020
gaccgaggga agcaattttt acactgccac ttctttttcg attgccaact taccgaggag	1080
tagccacaat caccacatac tgtgtgatag atgtgccatg ctccacatta ggacacttgg	1140
ccaaagtcgg cataacggct ttgtcatgag ttctcccttg gcggttctcg ttttggaactg	1200
tcttctttta ggatgtgcca ttttttttat ttaaattgtt ctttttgttc caatagtttt	1260
ccaagagaat cccactcgaa tcgtgagcgg tcataccgga ttcttctgtt gcttcatcgg	1320
cattatcgcc agcagatcgg acattcgatt catcatctcg gggtcgcact ctatccga	1378

(2) INFORMATION FOR SEQ ID NO:1331

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1000

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1331

agaccgtttg	ctttggacag	atcgagttct	gtcagcagat	tggcaaagcg	tcgaaagcag	60
tcaggccggg	acaattgcta	atatctataa	aggtagcaca	tagtcccctg	cagaagaacc	120
tctaaacaag	aatttggcca	ttttgcctag	acgatggcct	ttgtttgtct	gaactcaaca	180
tcacgaaact	cacctgatcg	agcctctccc	cccgaatcgt	acttgccgtt	tccgttgagg	240
tctgccaaat	gtcgttggca	tagccatcct	cggcttctat	tttgattgta	cactcacatc	300
ggcttcactt	agctccatga	taatgcgctc	gccatcgacg	ggtcaggaac	tttctgtgct	360
gaggccgggt	gaaccgatcc	gaagaagccg	gaaggattac	aagggtgag	aatagcgggt	420
ttcttttcat	aactgggttag	ttttggtttg	tgaataatgg	ttagtatttg	tactgatctc	480
atgtttttcaa	atctcattgc	caattcggcc	ggagggtttg	tagctgccat	tatccgaggt	540
ggaagaaaaa	acgtgtcttc	cattttcatt	tcgtcgtagg	gcaacgaaga	aagcggatgg	600
atctgttttg	gtttgtgcgc	ctttctctgg	atagcgcttt	gttcgaactg	cgtcaataca	660
gaggtattat	ccttgcctta	ggtaagcaaa	tatatagagt	atttcatgga	tattgggacg	720
tttttctcct	aaatagtcta	tttataaaga	gcttngggca	gatcgtatgc	tcgtcccaat	780
gcctgcacgg	atgtaactgc	tctgatttca	taactttgac	tttctaaacg	gtaaaaattg	840
ttttcgatgg	caaataatac	tcttttggcg	aagactcgac	gtatgtctgc	cttgtcggtn	900
ttctgttggc	tcatggcgat	gatgcacctc	ttgggcagga	agtcactatg	tggggggaca	960
gccatggagt	ggcgccgaac	aagtgcgccc	aacgctgggtg			1000

(2) INFORMATION FOR SEQ ID NO:1332

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 755 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...755

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1332

gtgaatatct	tcgccgtact	ctttgtagta	gtgggcagct	atctgtctag	gaaagggagc	60
ataaggcgat	agcattattc	aaaacatgta	gagccatgga	acatatatac	tgtgcgtatg	120
ataatagaca	taacccaaat	aagcaccaag	acgattcggg	gaaaaaatcc	catcagatcg	180
agatgtgcaa	tgctgaaacg	atggcagtca	gccaaactgc	agcatgccat	ctattgcggg	240
taacaggcgc	atccagcgta	atacggctcc	tctaaaaaac	aattcttccg	taatcccggg	300
attattgcaa	tagcaagcaa	agcccaaccc	tgcctccct	gcacatctcc	tttatcaggc	360
ttgtataatg	ggcaccgcta	cggtcgattt	ctcttgccaa	gccggaggga	gaaagggcag	420
aaggagcttt	ataccttttg	tggttaatac	acggccaaaa	gacatccggc	ataagagagt	480
aacagcagta	tgctttgcgc	caatcgatct	gatacggttg	taggcccaca	aaagatgtag	540

cctgtcagaa aataaaaagg cttgccatac agccccctccc ccgaatacac gacgctgaat	600
aagcttgtcg ccaatagcaa cggcaagcct tcctgtcgta cccgaataga gtaggggcta	660
agtgaagtac agagatcagg agatagcaat aatcagtatc agagcaagat gactgagtat	720
aggccaatct ttaaaaganc ctttttcntt gctta	755

(2) INFORMATION FOR SEQ ID NO:1333

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2351 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2351

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1333

gggcccactg ataaagcagg agtatggaga ctgcgaatct atttcggccc acgtttataa	60
gcctcgtgca tgttgtgtac gagctttgtc ttgtccaaac gatgaccagg tattccgaaa	120
taaaaaacat ggctcgcttc tgtatcgctg atccacccat acacatccgt tctcgcacac	180
ccctatttca ccttcgtaat agccaagtcc gtaccgttca tgtcgcccgg attctctact	240
tcctcggttt gtaggtagct atatgaatgt atggaagggc cgatccgata cgttggcatc	300
gggatatgcg gctctgatca cttcgttaat gtccgtgtccg ggccaagctc tatggcatcg	360
ccaccactg caccgcatat ttcgatgaag cggccacctt gtccggatag gtaatgggag	420
taaagtccat tcccggttcc gtcacgctg cttgggtgtgc tgtttgattc tgtctaatat	480
gatttgtctg tgtccatgat gattacttct tgatattctt cttccacca tttattgaaca	540
agtagaggca aagcaggcca attcgcgccc cttgccccat gcgttcagcc gttgtacagc	600
aggaaccgag gcagactgtt ggccatggga gccatttcag agccgtattg aaacgccacg	660
gactatccat caggatattc ataccgccga catcagcttt ttctcttggc tggcacgccc	720
caaatgatcc aaatctgacg ccaacgatag atctgctcac cgaggtcgat tttcacaggg	780
cacaattcga acaggagaga cagagcgagc aggccgatac attatcgcta tacgacgcgg	840
atccttgagc atccccagat tgatcccgat agggccgggg ataaataagt gtaggaataa	900
ccgccggagc gacgatagac gggacacgta tcatacatgc accgcatctt atgcagttga	960
gcgtttttac gtgctcctca tttcgatgat gtccgctcct ccgttgtcca cgatgatata	1020
gtgtagctcc caccttcatg aggccttgccg tagtgtgccg tatagggtgg agagggcttc	1080
ctgtaccga acgcgccaga agtcgggtga ataccctac ggcattccagt cgggtaccaa	1140
tttctccagc ccgaaagagc aaatgttcaa tttctgcaag ccatacccat atcggcattg	1200
ccctcattgg tgcaaacgac cacttgccct tagaggcaac ggcaaagttg ccgcccgta	1260
ttgctgcata cgcgtgataa agtcttcgag caggcttttg cgtgctgcac gtgtcagata	1320
cgtgggtcgt aattgccctt ctccgtaccc aacttgtcat ggaatagatc gctacagcct	1380
cgcgtttgat atggatagcc ggcatacaga tgtggctcgg tgctcttcca taagtggag	1440
gatacgctcg ccgaggtccg tttcgatcac tttataccct tttctataag atattcgctt	1500
aggtggcact cctccgtaac atggatttgc tcttcacgaa ttttttgacg ccatgatcac	1560
gcagaatgca tacaggatct cgttgtgctc cttggcgctc ttagcccaat ggacgatata	1620
ccgttgcgac gagcattttc ttcaaatcgc agcagcagct catccagtgt gtcacattga	1680
gcgtttgatt tcatgagcca gttggcgagc atcttcccca ctgggggcac cgtatcacgc	1740
tgatgtcgc gtttgggagc cacttccag agcgtctcgt catgccactt gggctccgga	1800
cttattctcc aaaagcgggc agccgcttcg ctatgcttcg tactcataag tttgctgcta	1860
aatttctact gcatgaattg tcttgatcgg caatttctct ctgtctatca cccctgcata	1920
tgcatgaggc acgagctgtc cggccctgtg atgtactccg acctgtggat atgtgatcca	1980

gcaccttgtc	atgccccata	caggtggatc	ctccggctcc	tccaccgagt	acataccgcc	2040
gaaaccgcag	cattcgatcat	tcgcttcggc	tcgaatacct	ctatgccctg	caccatctcc	2100
aatagccgcg	caccttggtg	tggtacggc	ggtgcacttc	actgggggtg	gacagagcag	2160
ttcgcgcaca	ccgtggcaac	tgttgatgag	gtcacctta	tgggcaatcg	ggaggggagg	2220
ctggtgatct	tcaggtcatc	gtgcaagaac	tcgctatatc	ccgaaccttg	gctgccgant	2280
tgcagacatg	tcctgtcggg	ctgggatatg	atcatagttt	tctttcacga	aagcaacgca	2340
actgaccggg	g					2351

(2) INFORMATION FOR SEQ ID NO:1334

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 908 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...908

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1334

taatgtcttt	tctccccagc	aggatagaga	ccctcacgga	cgcaccggcc	ctaccagcat	60
accgaaggcc	atcaggaaga	tcaggattgg	gaaggatgaag	ccaagccgga	caaggcatat	120
tcgctcacc	cggtcccgat	gaagatgggt	ctacgatgtt	gtatagcgaa	ttgactgctg	180
taccaccac	cgcggagag	catagtga	caacagtttg	ggtatctttt	ccgattctaa	240
tgcttgatct	ggtgggatga	cataaattac	ctctttatgc	tccggatcgt	tatcatccgg	300
gagtga	gcccgcagca	tatactgcag	agcttcccct	ccttacaaaa	tagaccgaaa	360
accctctcgg	actttcggtc	ttgttcgggt	gccttcctct	tggacttgaa	ccaaggaccc	420
tctgattaac	agtcagatgc	ttaaccaact	gagctaagga	agaatagaaa	aacggcttgt	480
gacagcgctt	ctcttgggct	cgaaccaagg	accctctgat	taacagtcag	atgctctaac	540
gactgagcta	agaaagcctt	tcgtttttcg	tgatgcaaag	gtagtgcata	tcccaaacat	600
gcaagagggt	ccgcaaaaaa	aatacattca	gatattaaac	cttctcgcca	ccacatccgt	660
tggggcatct	catccatatt	catgacgaga	aagggtgcc	gcctccagac	ggtttaggct	720
cgtgaatttt	ccattcgatg	ctccgaaaaa	cgtggcgca	gaattttttc	gtattggttc	780
cacagttttt	atttcccgag	ccaaacgaaa	atttacgcgc	gtgttttcag	gattacgaac	840
catgacgtgt	actgaaaaag	ttgacagttg	ggtggatagt	tcacaatggt	tactaggtct	900
tctataat						908

(2) INFORMATION FOR SEQ ID NO:1335

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 967 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1335

ttctttgccg atgggcatct gatcggacgc aaggcttcag cttgggcgat aagttttttg	60
attgcgaacg tattcccttt gcccgaaaat agtaatttgt gccttgtttg ggtgggactt	120
gttctcattc gccaacggga aataattgga aacaggaata atataatggt ggaaatatcc	180
gccttcggtc aattgacgac ccggcacttt caccatagca taatacaaga aaatgactga	240
tcgagagaca gaattattaa catcagcatc gaggaggaaa tgaagaccgc ctactcgact	300
attcgatgtc ggtgatcgtc tccagagctt tgcctgatgt ccggacggat tcaagccggt	360
tcatcgccgt gtgctgtatg ccatgaacga aacggcaatg tgtacaccat cccactcgca	420
aatgcgcaa tgctgtcggc ggggtgctgg acactatcac ccgcatggcg actcttccgt	480
ttatatggcc tgggtgcgtat ggacagccg tggagcctgc gctatccgtt ggtggacggc	540
agggcaactt cggttcgggt gatggcgatt cgcctgctgc catgcttta ccgagtcgcg	600
cctcagcagg attgccgggt agatgcttca ggacataata aggaaacggt agacttccag	660
aacaatttcg atgatacacg tcaggaccta cggttctgcc gacacgcatt ccgaacctcc	720
tcataaacgg ggcttcggta ttgctgtcgg tatggctacc aatatgcctc cccacaattt	780
gtccaagcta ttgacggatg tgtggcgta atcgaagcag atggcgacat agagtggagg	840
gcttgatgca gtatgtcaag gctccggatt tccccacagg agattcatat acggctattc	900
cggagtgaag gaagccttcg agacgggacg agccgtgtcg ttatcagaag tcgtgccgag	960
atcgagc	967

(2) INFORMATION FOR SEQ ID NO:1336

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 658 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...658

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1336

taaagggtgca tggatgatct ctatgcaccc ttcgttttga tccgatacgt cgaactcgat	60
tgtcagtcga gcgatcgagc cactgacggc taatgtgctc gagccaatta gctcccacgc	120
ctatatcggc aattagcggc acacgaattc gggcatcacg ccttccacgg caacgaagat	180
gcatacgaga agcattcgat gcgttgggaag aggcaaatag cttgccaaat cgaggaaatg	240
aaaagcgttc gtagagctta aaatgatgcc gatatccttc actacataat ctgttgcat	300
tatttggtga atgtgcagag cgacacgatg tccgaaattt gctaaaataa tgtaccttg	360
ccgcgctgat tattatcaaa tagtgccgaa cgtttgattt tcagtgcgtt tttgtccgag	420
aggagcagcc cagtgtccgt ggtaaagctc ctgatgcacc ggccgaatcg acagaaaaga	480
tgatcgttca caaattacta acaacaaaaa aacaagcagt ggatacttta agcttcaagc	540

catttctgcg aacaaaagca actgttacga aggaatgggt cattgtagtg ctgaaggaca	600
gacacttggc cgtatgtgtg ccaaggtggc aaagctctgc gcggcaaata caagccca	658

(2) INFORMATION FOR SEQ ID NO:1337

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 687 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...687

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1337

cgtctccggc	gtacatgtct	ccgggtgcagt	acctttctct	ccaaggatct	ggaatagtag	60
tgccggcgag	gcagttcggt	ctcttgccac	caaagacgag	aggcgccatg	tcgtgcgtag	120
aggtgggtaca	taccgaacaa	tagggctccg	actcatatcg	gcaaagtcct	gtcccggctc	180
tttggtatatt	ctttccaaat	gagggatagc	agttgcaact	gttcattac	gacaggcact	240
gcaggggtat	cattcccaga	tcctctacac	agacgagcat	atccgtggag	gaaacagcgg	300
tatcagccgc	gacagtgcct	cttgcttcca	caggtcatcg	ttcgcttggtg	gaagtagtcg	360
tcgacagac	gctgccaagc	tttcttttcc	tcaagctcag	atgagcatag	cgaaaagact	420
tttcgaaatg	gatgcgtgga	tgaaggcccc	gggcttgccct	gattctatta	cgaaacatac	480
ttctgtggct	cacgcatcaa	acctctgata	gtgtcctctc	ctccgacaac	ggctgtaggt	540
ctaacgctgc	tatatcggtc	tgatagaaat	tcttcgtcgc	cagcgtatat	aatccgaatc	600
gaacggacga	aggtatcgac	agcatacttc	gcttgcaagc	gtccgaaaat	ctgcttgagg	660
tcattctgcat	gaacgaagcg	gaagggg				687

(2) INFORMATION FOR SEQ ID NO:1338

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2996 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2996

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1338

ccaggcgaag	tgcatggcat	ctggcgtatg	aaggagacca	aatgatgtcg	gcctttcgtg	60
gcacaggctt	tcgtcgatgg	agatcgggta	gtagtgggtga	gggtttcgtg	tatcatccca	120
atgagaagaa	acgcgatctg	atgcggcgat	ggaagcggca	ctatacagca	tgcgtaaggaa	180
ggccgagaaa	gagttcatcc	gtccattatc	aggaaagctc	gctggactac	actcaaataa	240
atatcgaaac	ggcttaccga	caacacacga	agattcaatg	caatggagaa	taaaagctga	300
aagtggccat	ttcccatggc	gacatcaatg	gtattgggta	tgaattctgc	ttaagacctt	360
tgccgaagcc	tcgatactgg	atctcttcac	gctgtcatat	acggatccgc	caaggtggca	420
gcctattaca	ggaagacctt	gagttggatt	tggaaagttg	gaaccaagta	tcctcggcaa	480
ccgaagcggg	gagggcagag	tgaatctggg	aaactgcata	cccgaagacg	ccaaagtggg	540
atgggcgttt	gctctcctca	ggccggagcc	tatgcgataa	aagctctgac	atggccatcc	600
aagccgtgaa	gcaaggcgat	gcggatgtgc	tgggtgacatg	ccgatcaaca	aagcagccat	660
gccgcaggac	atctttccat	acaaagccat	acggaatacc	tgcaggccca	agccggcata	720
gagggcgaa	atgcgtgatg	atcctggcgc	aggataagct	ccgcacagct	ttggtaacga	780
tgacagagcc	atagcacgcg	tgccatcgct	tatcactcgg	gagcaaatcc	tggcaagctg	840
aaggctttcg	atcgcagcct	ccgcattggat	ttcgggtatag	tagtccgcgg	atagccgtca	900
tggctctgaa	tccgcattgcc	ggcgacagcg	gctgatcggc	accgaggaag	gcgacacgat	960
ccggccggcg	gtgcaagagg	agaagaacag	ggattgttag	tggtcggccc	ttatgccgct	1020
gacgggtttg	ggggctcggat	atggctctgc	atttcgatgg	cattctgtcc	atgtatcaga	1080
tcaggggctg	atccctttca	agactctctg	catggacaga	ggggctcatgt	gacggcaggg	1140
ctttccatcg	tacgcacttc	gccggatcat	ggtacagctt	cgacatcgtc	ggcaaggcg	1200
aggcttcgcc	cgattctttc	cgcgcccat	ctatcaggcg	atcgacattt	atcgttcgcg	1260
ggcatcgtgg	cgatggctac	gcgcaatcct	ctccgaaaga	gttattttcga	gcggggcaat	1320
gacatgagaa	attgccgcaa	acagaagatg	agcattaatt	ttaataccct	atgactctat	1380
gtttaaggat	aagactatcg	tttacacatc	cgggacattc	gtatgttcca	ctacaacccat	1440
ttgcgcgatg	tcaactatgc	gcgcagtttg	cagacatcct	tatcgttggc	gtcagcacgg	1500
acgaactggg	cgcttcataa	aggcgccgcc	cattattcct	tttatcgagc	gcttgcaaat	1560
ccttgaagcc	tgaagacacc	ggacatcgtg	attccgcagc	atacattgga	tcacacgaga	1620
tcgtcaagaa	gctgaatata	gacgctttcg	tagtggggga	cgactgaatg	gcaaatacga	1680
ctatctgaag	gatctcggcg	ttcaggctct	ttattccctt	acgggacggg	cgtttctctt	1740
acaaaaatca	aggagactat	acacatagct	atgccaagac	gctgaatgaa	gagcgtcagc	1800
acaagcccaa	gtcgtccaaa	acatgtagga	attatggcgg	tcggatacgc	gttgattacg	1860
ggggaaccaa	ggggatcggg	ctcgcagtag	cccgtctctt	ggcaagcaga	gatactccct	1920
cgttcttacc	tacggacatg	atcaggagac	ggcgcgagca	tggcggccga	attggcagag	1980
agcgctccat	ccgtagagct	gctgcaagcg	atgctaccga	tgcgaaaggt	atcgacctga	2040
tagcggaaag	ccttgagcga	gggatattac	tctgcaagct	cttatcatga	atgccggcat	2100
cacatgcgca	cgcttttcga	ggagatgact	atcgacgaat	ggcagcgcg	attcttgcca	2160
atgtccattt	ccccaccttc	ctgatccaac	gccttctgcc	gcgtacgagc	gcaacaacgg	2220
atgtatcatc	tttaccggat	cgctcatggg	aataaaccgc	acggcatggc	tctgccttat	2280
ggagtgaaga	aatccgctgt	acagctctga	cccgcattct	ggtgaagcat	ctggagcctt	2340
atggcatccg	aggaatgccg	tggcaccggg	attttagatg	acggaatggc	agaagaacaa	2400
acggccgaaa	tacgccgaaa	tatcgagaat	aagggttgctt	tgcatcgctt	gcgacaccgg	2460
atgaagtagc	cgaagctttt	ttatttttgc	tcgccaacgt	tattgcaatg	gtgaggtcct	2520
gactcttgat	ggaggctaca	gcttccgcga	acagctcaga	catgaacgaa	aacgacaagg	2580
agtaccaagc	ctctctcaat	cactggagac	ggaaaatata	attgaccgga	aattctaccg	2640
tccgatgggt	tttactttgc	caagcttctc	agtcgtacaa	gggtaacgcc	caatagggtta	2700
cgatcctgtc	catctttgtc	ggattaggcg	gcgggctgtg	cttctgcata	ctccttatga	2760
tctccgttgg	gctgtggccg	gtattctatg	tatgtagtgg	ctaataatcat	ggactgcac	2820
gacggacagc	tggctcgtct	gacgggatca	aga'tgagat	cgggcgtatt	ctcgacggca	2880
ttgccggaga	ctttgggttc	cctgcattct	tatctgcttc	atcattcgct	tgacagcaga	2940
gtatcccgat	gccttaagtt	cgatgaccac	cggtattcct	gaattgccgc	ggtctt	2996

(2) INFORMATION FOR SEQ ID NO:1339

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 338 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...338
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1339

cccaacaaga actcggtaaa aattatcggg	gacaatacga ataaatactt caggcttact	60
tcgcttacga ctcgaagtaa atcgggtgga	ttcacctgtc gcaccttcgt ttcggcgata	120
cgcccatcacg ttctacctac cttgtgggac	accggacttc gtggcttgcc acgtgcctgc	180
ctacttgctg atgtacacgt gctgaaagg	ctgaagaaaa aagggaacttt cctgctcaat	240
tcgattgggc tccggaagat atagaacagc	atctgcccac caaggtaaag cgtttttggc	300
taagaacaac atccgattct acacgattaa	cgctactg	338

(2) INFORMATION FOR SEQ ID NO:1340

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 534 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...534

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1340

gcaacagttc atattgggtt tcaaaacatt	ctttcattat atttgacct aacaaatatg	60
attatgggac agtattcaga agattttatt	ttgaccggaa aaacgaaaag gctgtatttt	120
ccttgaaagt atatatagga gacggcagg	tcttttgccc atgaattgga aaaagggg	180
tccccctcgg gatttttcgg tttttccata	ngagtacaaa gagccggatg gcgatcgcta	240
ctatgtttga agaacaggct ttctttcctc	aatcaggatg gaactgtgtg taaatggcca	300
agtcctccct tttgtctcct ttccaaatgt	ttcgctgggt acatttcctn gcaatgcaga	360
tataaaacgg agctttcgtc tatgtggtaa	aaccgttttt atgaactatt atgatgaatt	420
gagttatggg gaggagcagc ggtggaggta	gtattgcatc gcgagacct cccggattgt	480
gctcgatgtg cattcactcg cggattcatt	tcgtgctcag cttttgtcga taga	534

(2) INFORMATION FOR SEQ ID NO:1341

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 877 base pairs
 - (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...877

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1341

gccgaaagga	agacctatcg	gcagcggcat	atcggcgata	accagattgc	cggacctgtg	60
acgatgtctt	tctccggatg	cacctttgcc	ttggaaagtt	gatatagaag	tgaggatgat	120
cgtgattgtc	gcaggtcgta	taacgcctcc	ttgcataaac	atgatattgt	cgggcatcct	180
cttggctcta	ccggcatcag	atagccttcg	cccttgctgc	gtgatcactc	cgctgataat	240
ccctctcccg	tgcggaagtt	gtaggtaaag	ttcttggctt	cgaacgactg	ctctcatcct	300
tgaaaacagg	aaaggccatc	ggataaccgg	ccgtatcgag	gactagcgag	tataaaccgt	360
actgctgtcg	gtattgagat	acatgaagtt	tgctccaagc	gactcttttg	atagctcaca	420
tagctcttgc	cgaaaagata	gcacgattct	gtccgagcaa	aacgatggaa	tcggcagctt	480
cgtactccac	atatcttcca	attcgaattc	atcgtcatac	acgctatctt	gccgcatcgt	540
ccggtggaat	cggcaggaag	ggaatctcga	aaagcactgt	caggaatagt	tttgcgagag	600
gcaccgtgtc	tttcgctgta	gaatcagaca	gcgcagctgc	cgacggtggt	gcaatccgac	660
tgctccggcc	ataggacgtt	ccgcaggacc	aaagtagcac	agagcaatcc	gacaaggatt	720
acgggtaata	accataaagt	ctggaacaga	gatcggatac	tctcattcgg	attcattcat	780
actccaggtg	agcaaaggta	aaaaagaagt	tgtaatcac	gatgaggttg	tacggctgcc	840
ccggggccga	cgcattaaat	tggtttgcgg	cttcatt			877

(2) INFORMATION FOR SEQ ID NO:1342

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 803 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...803

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1342

tcccagtggc	aaatcgctcg	ggtttgccat	cttcgtcttg	gcgtgctcgt	tgagtgtacc	60
gaagaaaaga	ttctgcagta	tggcattgta	ataattccct	cggtggtgct	attgggatcg	120
aaatccttga	ggatggctct	gaggaagcaa	tatcgaaaag	atgctgagga	accagctcct	180
tttgcttgat	gaaccaacaa	acataatacg	cgtaattagg	cggattatct	tcgtttctag	240

atctttctat	catcttcact	tgtactagta	tcattaggga	aactgatatc	ggccccgggag	300
atatggccca	ctggtaccac	tcgaagagat	ccttgtagaa	ctgttcgtca	gtgcctcgac	360
ggagaaagca	tcctcaatat	ctttgagttc	gagtccttggc	gttgtttctt	gtcgattaac	420
ttctggaagt	tgtctgctgc	ttacgacagt	gctgcccagg	gccgagcaag	aaggtgaaac	480
gcttgctgct	gtaatgtcgg	actggctcct	ccccctgtgg	cagaaggtaa	accgccattc	540
cacaaaggat	tgtcctcgta	gtggaatatc	ataaaaagcac	tcgaatagtg	tcattgatacg	600
cctgataata	ttctggatgc	caaccttatt	gcgagcctct	tgatctggct	agataaccgtg	660
atgtcaaaga	tgttgatagg	attgaatcca	tatcgatatt	gccgatatgc	tgatctctag	720
gatgcccgtt	gcttggctgc	tggtcgtagg	tcgggtacat	ctctaggata	gatcaccatg	780
accacctcaa	atagctctga	cca				803

(2) INFORMATION FOR SEQ ID NO:1343

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1343

tctttgggtt	ttcattttca	tcaaaattat	tttttgttgc	atttgcataa	tttcttttga	60
ttcatgcgct	gcaaaggtag	cagcaataag	aagaaaagga	ataaattcag	tataaacgaa	120
ttgaagccga	acaggaggaa	tagacaaggc	cgaatcttcg	gatttctttg	ctttcccgat	180
attggaagta	tccgtacttc	gtgctcggct	gtggccgaca	ggcccatgca	gcgaattaag	240
aaacgttgta	ggctgtttct	tgctccctgc	acgatgctgg	aagccgttgt	cacggacaat	300
cactccgtgc	atgatgcagg	aagccgttgt	cacgtgacaa	tcattccgtgc	acgatgcagg	360
aagccgtcgt	cacgtgacaa	tcacgtcctg	cagatgcagg	aaacgattgt	cagccgacaa	420
tcgtttcgcg	cacggtgtt	tgacctttcg	tcgcctgaca	atgcttatat	aaaagctgtt	480
tcagggggca	tgtcacttga	cactgctacc	aataacagat	taataatcaa	tcaaatacac	

540

(2) INFORMATION FOR SEQ ID NO:1344

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 777 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...777

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1344

ggaaagacta	ctttcacgct	cggattgcta	cgattgcttc	gaaggcgcgt	ctcaaagtgc	60
agcctttcaa	atgcggtccc	gactatatcg	atcctaagat	caccgccttg	catgcggaac	120
ggaaacggtg	aatctggatg	ctttcatatg	agtcgggagc	atatcgcccg	actctatgat	180
cgctacggca	gtgaagcgat	gtttctattg	tggaggaggt	gatgggcttc	ttcgacgggt	240
acgacgtatg	acgggtagca	gtgccctttt	ggccgaaaat	ctgcgcattc	ccgtttgctt	300
ctgatccatg	caggcagcac	ggcctattcc	gtggctccga	tacgtatggc	ttcaaact	360
tccgcccggg	tgtggctccg	gtgggtgtcg	tttcaataag	gttggctccg	cttcgcatta	420
tcgctatctg	gaggaagcag	cgcggatgcc	ggtgtggcca	gcctcgggta	cttgccgaag	480
atgaaagatt	ggaaataccg	tcgcggcatt	tgggcttgct	tgtggaggat	ttagtccgta	540
tgattatttg	ccggacaggg	tggcagatgc	catcgagaag	tatgtggagt	ggagagattg	600
cttggtctga	tggcctccga	tgtcgatccg	gttatcgaga	agagagcttt	acggagtctt	660
ctttgcacgg	gaggaatgc	attgcgtggc	ggatgacgaa	gcatttaact	tcacctatcg	720
ggagaatatt	cgtcgcctga	aagccgggaa	gggtttgttc	gattcagtc	tttgcgg	777

(2) INFORMATION FOR SEQ ID NO:1345

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 773 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...773

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1345

ggaagcttcc	accggttaaga	atgaggctat	cgagcttcgc	gatcaggata	ggctcgctac	60
tgtgncaaag	gtgtcctcaa	ggctgtgaag	aacgtaaaaga	agtgatagat	cccgcactct	120
gcggaatgtc	tgtattggaa	caaacagtat	tgaccgcaag	ctcatcgaat	tggatggcac	180
caaaacgaaa	agcaactcgg	agcaaatgcc	atgctgggcg	tatcactggc	cgtagccaaa	240
gcagcgcagc	ttatttggat	attcctctct	accgatatat	cggcgggttcg	aacactatgt	300
cctgcctggt	cctatgatga	atatcatcaa	cggcgggttc	caccggacgc	tcctatcgca	360
ttccaggagt	tcgatgatccg	ccctgtggga	gctgctgctt	ccgtgagggc	ttgcgcatgg	420
gtgcccgaag	gttttccatg	cctcaaaaag	gtgcttcacg	atcgtggtct	gagtactgca	480
gtcggggatg	aggagggttt	gctcctgccc	tgaatgggtac	ggaagatgct	atcgaatcat	540
cctcaaggct	ttgggaagctg	ccggatacgt	gcccggtaag	gatattacat	cgcaatggac	600
tgcgcctctt	ccgagttctt	caaggatgg	atttacgcta	cactaagttc	gaaggcgaaa	660
agggcaagaa	acgctctatc	gatgagaggt	ggcttatctg	accgaactgg	ttggcaagta	720
tcccatcgat	ctatcaagac	ggatgagcga	aaatgactgg	gaaggatgga	aga	773

(2) INFORMATION FOR SEQ ID NO:1346

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 893 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...893

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1346

gcgcagtagc	cgaagcatcc	gattcttctg	cctgcaacaa	tatatacttg	ccacgccatc	60
gaagctgaga	gcatacctcg	actgccccaa	agcttttgtg	ttatggtcag	tagttcgtct	120
gtaccatata	ggatatactc	gatcaactct	tccggggcaaa	tcgcgcaaag	gcgttttgat	180
cgtcacatcg	tacttccgca	caatgcctct	atttgccaaa	agaaaagatt	gtttttgtat	240
ttgccaatgg	ctcaatgcc	ccttcgtata	tactcttctc	acgagatgga	atgacttgtc	300
catatccggc	agattcactt	cgccccagcc	cttacagcgc	ggaaatagcc	atgaggggaa	360
ttgaaactga	aattgtgagg	agccggatcg	cttacgaaat	tcccgtatca	ggacacatca	420
tcatccgact	aaaatgtccc	attcgttttt	ttccgaatcc	aacaccatca	caagcccttc	480
gccttcacgc	tagccagtgc	caagctctcc	gctatacggt	tgctttgatt	cgatgctacc	540
acagcttgtc	gatctgcact	tcgacgtcat	gcattttata	gcgatcaact	tcatcccatg	600
caaaatctcg	cgaatctcac	cattcacgcg	tacgtgcgat	agcctttctt	acgaagcctt	660
tcgaatagct	ccttataatg	ccccttcgcg	agcgaaccac	cggggctaac	aaagctatct	720
tacggccatc	atactttcca	aaatgagggtg	gaagatttgc	tcctcggtgt	atttcaccat	780
cttcttcctc	cggnataaga	ataagcctna	gcaacacgag	catagagcaa	acgaagaagt	840
cgtacacctc	tgtaacggta	ccgacagtcg	atctcggatt	ccattggtcg	tct	893

(2) INFORMATION FOR SEQ ID NO:1347

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1284 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1284

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1347;

gggaatatgt	cggcttttac	agtcacttta	atcatccgga	acgtgattgg	aaactcaatt	60
tgcaagggga	agaaaccccc	ccggagccta	atctttttga	tggaggctta	ctaaagcgaa	120
aaacgctcta	aagcgaccta	tttactgaat	tacttgctgt	ttttatccct	actctgaggt	180
ttatcggaca	gcaatgatct	agacatatac	cttcgggtgt	gataagtttt	tggtcgtatc	240
tccaaattat	ttctctcgtt	tatgcggtat	tggctaactt	tggagcgtgg	tatatacaat	300
tactacaagt	gaagatttag	aagagaccaa	ccagcatgca	ttgcctgata	aagagagtgt	360
ttatcacata	ccggtgatgc	tcggcgagtg	ttggaaggat	tgcgtattga	tcctgacggg	420
tgctatgtcg	atgtcacgtt	cgcggcggcg	gacattcccg	ggctatcgtg	gaaaaattaa	480
gctccaaagg	cggctgtacg	ggttcgacca	agatgccgat	gcttgtcgaa	acattctcca	540
gatgagcgct	tcacctttgt	aacttccaac	ttccgctacc	tcgccaactc	atggattatt	600
acggagaggga	tggagtcgac	ggcatattgg	cagacctggt	gtatcgtcac	atcatttcga	660
cgaagaggag	cgcggattca	gtttccttcg	gaaagtcctc	ttttggacat	gagaatgaac	720
gctcgtgccg	gccgcatgca	gctgccatct	tgaacgaata	cgatgcctcg	tcctgtcccg	780
ccctttctat	cactatgggg	aactgaaaca	ggcacgtcgt	tttgctgcat	ccatgtccac	840
tacagggagt	ctctttccgg	cggactgcaa	actgtggggc	aattctcgag	gccgtgcgcg	900
gtctcatctc	tccgcgagaa	gaaaagaaac	attggcctgc	atcttccaag	ccttgcgcat	960
cgaggtaaac	gatgagttgg	agctttgcag	caaatgctcg	aagcagccct	cggctgtctg	1020
agaagtgggtg	gcgacttggt	gtaatgacgt	accattcgct	tgaggacagg	atggtcaaaa	1080
cgtccttcgc	tacggaactg	taaaggcacc	cgatgaagat	tctttgctct	gtacggagca	1140
ccacagagtc	cttggcaaca	gatcactcgc	aagccgtgac	agcttcgaca	aaagagctgt	1200
ccgacaaccc	ccgttcaaga	agtgcaaaact	acgaatagca	gaaaaaatat	aatggcagac	1260
actgcgaaaa	acaaatcagc	gaag				1284

(2) INFORMATION FOR SEQ ID NO:1348

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 710 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...710

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1348

gacggaaaag	aggctgatgg	agacggcaga	catgacgagg	acgtcacccg	gaaaaagtag	60
ttgaacagga	agacgacaag	gctgatgata	gaggcattat	cagggctacg	acgacttcct	120
tggctatgag	actccagagt	ttggcctctt	cagactattg	tttgccagcc	cctgtaccac	180
gatggccgaa	gactggtgcc	cacattgccg	cctgtgcccgc	caatgagcgg	aatgaagagg	240
gccatttggg	attggcggca	aagagggaat	cgaatcctcc	caagaggatg	gagtggccaa	300
tccctcccgc	atgccgatga	gaagccacgg	caggcgtgct	gcgtctgcat	atagacctta	360
tcctgatgctt	ctatatcttg	cgaaataccc	gagcaagctg	atagtcgcgc	tcgtgtctgt	420
cgcgaatttc	gtcgatcaca	tgtcgatagt	gatccggcct	accaaacgac	ccgatactgt	480
ccactaccgg	agagccacga	ggtcgtactt	ctctatcttc	tccgcgactt	cttcgatcgg	540
tcattgtctt	tgacggaaat	aggctcggtc	ttcatcacat	acttgatctg	gaagcgggaag	600
ggctgggtgat	cagtttcttc	agcggcagca	ctccttttagc	cgtcttcatc	gtcgatgaca	660
tagacgtagt	atatctcgtc	cacatctctg	cctgcatacg	catctctcga		710

(2) INFORMATION FOR SEQ ID NO:1349

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 340 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...340

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1349

gatagtgcag	acaaggtgac	ggtggagctc	gtggacaagg	cgaaggtcac	tatatgcctc	60
gtatgaaggt	caaaaactgct	ctgaaggggcg	tccgtatgag	cgtgccgagc	gtgtccttga	120
tgtgccttac	gcctcttcgg	tcagccgata	gaacaacagc	ggtggatctt	catcctcgga	180
caacaacgaa	cacaccggct	gtaaacaaag	catttaatag	tgacaacgat	aaatatctga	240
acgtcttatt	cgacaatata	tccctaaaga	ttcttcgttc	atcgatataa	cgacaaacag	300
atctccatta	tgagaccttt	gaaaaataat	aagtggagga			340

(2) INFORMATION FOR SEQ ID NO:1350

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 681 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...681

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1350

tatgggtgcag	gccggcggtgc	tggaagagaa	gaaaaaccgg	atcatggaat	aatgggtgtcc	60
tccacacggc	cgttcaacct	gatgatgggc	aaaatcatgg	tatcgggtctc	gtaggcctta	120
cgcagctcat	ctgntgggga	gtgctcaggn	actgctgctg	acggtagcac	agatcgcctt	180
cctcggcaat	ctgtacgccc	agaggccctg	agtcggatgc	aggcttccga	cataacgggc	240
atggctcgtc	catgaatgca	gaggacttcg	ccgagatgaa	ggaagtgatg	aacacatcgg	300
gggcatcaac	ttcggagagc	tgttcgtgat	gtttctcatc	ttctcatcgg	cggctacctg	360
ctctactcct	caatcttcgc	cgttatcgga	tcattggtatc	gaacgacgaa	gacaccagcc	420
agttcatgat	gcctgtgatg	acctcctgat	gttcgggttc	tatgccgcct	acggcagcat	480
gaacaatccc	aaggatcgct	cgcattctgg	tgttcgctga	tccctttcac	ttccccctg	540

tgatgatggt gcggttgccc tacgacgttc cgctgtggca ggagttgcaa gcatcggcct	600
gctgtacgga tgcttcgtat tgaagagggtg gatcgggcga agatttaccg cgtaggcgtg	660
ctcatgtacg gaagaaagcc a	681

(2) INFORMATION FOR SEQ ID NO:1351

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 669 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...669

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1351

tcgttcctgt cttacccgat ttcaatgcag ccgatgcagc aagtatagta cgcattccga	60
tgccaagtat ctcttcgtat cggacaaaat atgggagaga tggatccgtc tcagctcctt	120
ctcctgtgcg gagccgtctc tatccgtatt atacggctctt cctggatcgt acggagggtg	180
gcttgctcag ccaggagtag aaggattgag tcgctctttc tccgaacact acccttcgg	240
cttcaggcag aggatattcg ctatgccgag gtgtcgaacg acgatctcat cctgtgaact	300
atacctccgg tacgaccgga ttcagtaagg gggttatgct tcggccaaca atctggccgg	360
caatgtaacc tacgttaagg atagagacat tagttccgag gcgagacgat cctttgcttc	420
cttccattgg cccatactta tgctgtgctg tcaacttcct tacgccattg actatagggtg	480
tgcatgtgta atcttgggca aaatccctc tcctctcact ctgatcaaag cctttgcagt	540
gtacgcccct catttgtcat catggtgcct ctcatcatag agaaattgat cacaaggcaa	600
tagctccgaa aatcaagaca ccgttaatca aattcctcta agacttcctg tgctgaaaaa	660
ggtgataca	669

(2) INFORMATION FOR SEQ ID NO:1352

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2624 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2624

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1352

gtgaacgaaa	cggatgggtg	ccgtctgatt	ctggccggag	atatggcacg	cttccgccgg	60
tcggcagtg	ggtgagtc	gcattggatg	ccgggggatg	gaaacttcct	acggattg	120
tatacatgaa	tgtacactga	ccgagggtga	cgtcagcaga	aagaatccgc	cattctctct	180
ctggccacga	gcctaccggt	ttactttcca	atgggtatttc	ggaaaaaatc	aagttgaaca	240
taaggattcg	ggagatgtgt	cggctatttc	cggcactgaa	ctgatagaag	cactgatgct	300
tcgtttcgga	ctgtaggc	ggacgagacc	attattgtca	gctttccaat	aaacgtgctt	360
tggcctataa	tctgggcatc	cgcagtcagg	tatgtactac	gaagaagagt	tgattcgggg	420
cgatcgattg	gtgggtgacgc	gaataactat	cgttattgtg	acaggcgaga	caagacagac	480
ttcggttgcca	tggagagatc	gtggagattt	tgcgggttggg	caaacgatac	gagctgtacg	540
atttagattt	gccgatgcta	ccatcagcct	tgtggagcaa	gggcgcgaat	agaagcaaga	600
ttgctcctcg	atggactgac	agccgaaaca	gccggctgac	tcatgcacaa	agacaaaaac	660
tgtatgatgc	agttgcttga	ggactaaatt	ctatggcaag	tatcccggcc	agacgcaaa	720
cgatcaaaaga	ggatgtttct	tttcggcctt	ggaagtaaa	tatgcctatg	ccatcacctg	780
ccacaagcgc	agggaggaca	gtggaaacat	gtctatgtag	atatgggtat	gctagctatc	840
tgcctcatga	cgagcaactc	tgtcgttggc	tgtatacggc	agtagccgag	cttcggagcg	900
actctttctg	gtcaatactc	cgaaggatat	gtcccataag	aggggaaaaa	gctccttaca	960
aatggaagta	gagacctata	tcaccaattc	gttcacctgc	caatacgttc	ctttaccgtc	1020
cggcagcgaa	cgtgtcgtc	atagcgcagg	tatagatata	tacgggtact	cagcagttgg	1080
agagcgacag	gttgagggca	ttttcaaatt	ctgccaccgt	attatcgatg	tggtattggc	1140
atacaggcgc	gactgccaac	tcagacgact	atcgaattcc	atacagagttc	ggcttttatg	1200
gccgaaccca	attcgtgtac	gatggctttc	cttcgggaaa	gccgtggcga	gccaaagtcta	1260
tatcgtctctg	atcgccattt	gaggatgtac	gagaggggag	ataggaacag	tcccagtttg	1320
gcgacttgcc	atagactttt	ttgctttttg	tatccagtcg	tacttcatac	cgtagccgaa	1380
ttgaagatca	tcggagcaag	gaatgcagat	tgctttttag	gtgttttcag	ctcgattggg	1440
aaatagctgt	gtacgcattt	ccgcatacga	gagtagtacc	actgcttgaa	agccttatag	1500
ccgaagtgtg	aacgcaggcg	agcaaatcct	cggccactcg	atagcgattg	accgtgtctt	1560
tggtctgcatg	aagacactta	gtttgttttc	caactcattt	ttccagcgaa	tcttcttttg	1620
cgatattggc	ggacgatcag	attgccgaac	atgatattca	ggttgccgat	cctcctttgt	1680
accagttttc	ggaaatgtag	ttctgtgaga	actgcgcatt	gtctccatgc	tgaaaaacca	1740
gtagcggggg	ttgagttcga	ttcccggatt	ttttccggca	tgattattct	gtcggataag	1800
gtccccccat	cgagagctga	atgtcttgtg	gttttatata	ggaataatcc	ggtgcgaaag	1860
gcccatttcc	gtacggctat	atgtgaaaag	atccaatcgg	cgatattgca	gtcggtcagg	1920
actctgcgtg	ccaattccac	ttctgcaatc	atgtcgtc	atccggtacg	ggaagagggt	1980
ctgtccggcg	gacttggtgc	aaacgcgagg	tatctcaggc	atgggtgattt	gccacattcc	2040
tgctgctaac	ggaccggaga	attttcgggt	acgagcggtg	gttgagata	gttcacagc	2100
aggcggcgga	gactatcgga	gatgtcggga	ggctgtctgt	gtcggctaac	ggaggatttg	2160
cagttgggac	agtggagca	caggcttcgt	ggccatcgca	ccggtgctcc	cataaagcaa	2220
cagaacagga	atatggagag	gagatatctt	atctcattgt	agtcaaaaac	agtttttaca	2280
taaccatttt	atgccgggca	aagtatacta	ttcttttatt	tccttttttg	gggaattttc	2340
cacaacagga	tagatcatat	ttttacgctt	tgtatcctgt	tttttgaaaa	agtaaacc	2400
ggagttttta	tttgactctc	gggggttcgt	ttcgtttatt	atctgtatcg	tgaagttttc	2460
tattgattgt	tgaaaacctc	acatgcgctg	cagaggctcg	aaccaaattg	cggtcgccat	2520
agccgttgtc	gatacgggct	acgttgagca	gaacttattc	tcacgcangt	attccagcgg	2580
ataagctgcc	tttcgcgagg	tacggatg	accagtcgtt	agcc		2624

(2) INFORMATION FOR SEQ ID NO:1353

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1299 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1299

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1353

```
aaagaaacgt ttttatctga caccaatgat tctgatgatac acagtttgca agagagctgt      60
ttcctaagga aattagtttg ccgatatggt ttatttggac ctttgcgctg gcaaaaagat      120
gcacctatgc atccaatgac tgcagaaaag aaaaattact taataactta acccaacttaa      180
acattgtttt ctcagagaag aagcacaatt tcaccgcagg accctgtatc ctcaatgact      240
tagtttgaaa gatgctgcat cagcatgtct caattttgca ggaacgggtc tttcgttctt      300
gaagtttctc accgcgacaa agagttcgat gctgtaatgc tcgagctcgc aatctcttca      360
aagaacttct tgatgtgccc gaaggctatg aatacttttc ctcggtggtg gcgccagcct      420
ccaattctac caagtaccgc taacctgcta aagaagaaaag cagcctttat caacaccggt      480
acatgggcaa caacgccatc aagcaggcca agatcatgac gcaggatatat ggtggagaat      540
agaggttttg gcttcattctg aagacaagaa cttctcatac atccccaaga tttcgttatt      600
cctgaggacg tagattattt ccacttcacg acaaacacac gatctacggt actgaaattc      660
gtaaggactt cgacacgaag actcgttgtt agcagacatg tcttccgaca ttttctctcg      720
tccgatagac gtttcaagta tgacctcatc tacggtggtg ctcagaagaa catcgggtccg      780
gccgagctac tttcgtattg gtaaaaacgg atgtgctcgg acaagtagat cgtctctacc      840
cgatatgctg aactatcaga tccacatcaa gaaagactct atttcaacac tcttcccgtg      900
ttccccgttt atgtagcact ccagacgatg agtggtacaa agaactcggc ggtgtgaagg      960
tggttgaaaa gatgaatctg acaaggcagc ctttatctac gatgccatcg acagcagcaa     1020
gatcttccgg gcacgggtta tcctgaagac cgctctatca tgaacgcttg ctctcgtgaga     1080
aggatgagta caaagaactg gagaaagagt tcgctacggt tgcagctcac gcggcatggt     1140
aggtatcaag ggacaccgct ctgtaggcgg tttccggctt ctctctacaa cgcattgcct     1200
atcgaaagcg tacaatcttt ggttacgtaa tgaaggaatt cgaagctaag cactaatcgt     1260
gaataaattg aaaggataag atgattgccc gatttcgct      1299
```

(2) INFORMATION FOR SEQ ID NO:1354

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 652 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...652

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1354

```
gaaaaatgct gtaaaactgaa ataaacttac catatcgttt ttttataagc agaatgcctt      60
ctgccggaaa ataacgccgg ttccctatth tgaaagacgt aatttcccgt ttcttcccca     120
cctcaaagct gttttgaaat gtattcgaaa atcctcgcta catcaaaagc atcgtaatat      180
atttgttcct ctttttcaaa tttttctctg gcatcatagt ttcagggttg aaagattatt      240
cgtttttggt caataattcc attgtttcgc atataactga tataactctt ggcctacggt      300
```

ctttgacgtc	gaccgtttgc	atgattcttt	cgaccagttc	gtttaagata	aatgctcttg	360
ggcgtgaaa	acttcttttg	cgatttgtcc	cattccgtaa	gtttccgttt	ttctttgtct	420
tccggagatt	tctctccccg	gaaacgtgca	tttcttttc	cctgtcccat	ccgaacagca	480
tcaaagggtac	tccaacgggc	ttccatccct	tactttaagt	gcttttacga	ccgacaaagc	540
ggattctcat	ctttctctat	ggagaggatg	gccgccgact	tgcgctgagt	tccgaaccga	600
tatgcccacg	cagtttaatc	cgttcggaca	aaatggatag	acagataata	ca	652

(2) INFORMATION FOR SEQ ID NO:1355

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 972 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...972

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1355

tgatggaaaa	gtaagatttt	tcatagttaa	ggttttggtt	aatttgggag	gagtgagtcg	60
tgagactcgc	tccttttatg	ttctgatact	cttgtctacg	tctcttgtct	gaatttatcg	120
ttatttttcc	ctctatatga	aagagttcag	tactttcgcg	ggcaacaaaag	ttaatcgatt	180
tcaacaacaa	ccaattagca	ataataatac	gtactatggc	tctaagattt	atcactgcag	240
aagaacagcg	gagtttgtgc	atcacacga	caatgtcggc	tttagcggtt	ttaccctgca	300
ggcaacccta	aggtagtacc	tgcggcaata	gccaagcgag	ctatgcagcg	catgaaaaag	360
gcaatccctt	caagatcggg	atgttcaccg	gtccagtacc	ggtgctcggt	tggaacgggtg	420
cttggcacag	gccgatgctg	taagtttcgt	actccatata	agtccaataa	ggatctgcgc	480
aatcttatca	caatggcagc	acttcctatt	tcgatcttca	tctctctact	ttggctcaga	540
tctgcgctat	ggcttttacg	gcaagggtga	tgtggccatc	atagaggtgc	agacgttacc	600
gaagacggta	agatccctgc	tactacaggt	gtaggtacct	gcctactatt	tgccgtctgg	660
cagaccgaat	catcgtggag	cttaacacaa	gcaccccaaa	gaaatcatgg	gtatgcacga	720
cttgtgcgaa	cctctgatcc	gcctgcccgt	cgcgagctgc	ctgtctatac	tccttcggat	780
cgtacggcaa	gccttatgta	caggtggatc	cggccaagat	agtcggtgta	gtggtacgag	840
cgaacctaat	gacgagagcg	attttgcgcc	ccttgaccct	gtacgcaggc	tattggggac	900
aatgtggctg	ctttcctcgt	gagcgaaatg	aagccggacg	aatacccaaa	gattttcttc	960
ccctgcaaag	cg					972

(2) INFORMATION FOR SEQ ID NO:1356

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 616 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1356

ggacaacatc	gtcaatacga	tcaatagtct	gcgcgatacg	attgctattc	gttcgtcatc	60
gttattcttg	tggttctggt	tttcctcgga	cgatggcggc	cacatttatc	atcgggtctga	120
cgatccctat	ttcactgggt	gcctccttat	ctacctgatg	gctacaggca	atacgttgaa	180
tatcatttct	ctcagccctt	ctctatcgct	atcggtatgg	tagtgggacg	atgccattgt	240
agtgccgaaa	acgtaacgac	acataattgaa	cggggcagct	atcccaagca	ggctccatac	300
acggcacgaa	cgaagtgggg	atctccgtta	tagcttccac	gctacgatgc	tggtctgtatt	360
cctcccattg	acgatgattc	aggggcttac	ggtatccttt	tccgtcagtt	gggttggtac	420
gtgagtatta	tcatgattat	cctacggtag	ctgctctcag	cctgacgccg	atgctctgtt	480
cgcagttgct	cagcgcgaca	naaagcaagg	acggctgcaa	caaaagctct	ttgtcccgcg	540
gaacgctttc	ttgattctgt	agaatcgagc	atatgagccg	tttcttgatt	gggactgtga	600
gacacagaac	cgttta					616

(2) INFORMATION FOR SEQ ID NO:1357

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1347 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1347

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1357

ttttggacga	actcatcagc	cgctaccccg	aacgttattg	tagagcttct	cgggacgctg	60
cactttcgct	ttccatcccg	cccctgaaaa	gagcttcacc	gtggttcac	taatctcctt	120
ctaagtggta	agcgcgacac	aaataacctca	tcacacccga	atcgaacaaa	agcaaagggtg	180
cctatatcgg	ctgcgtacag	ctgtaaaccg	cgacaaggctc	agtatccggc	tgcgacccga	240
taatagggag	ccaagccctc	cctggccaat	ggcgatggcc	tttacctcct	gcacccgacg	300
gcaacatgag	cggtagcgcg	atcaatgtgg	ttttacccga	cggagcatac	aagtggacaa	360
tcctgcccgg	atcgatcgg	gaacaaacgt	atccgcaatt	acgacatccg	tttcgagaaa	420
gtctctcgc	aagacaactc	gccgttcgcc	tcattcccgt	atctcttacc	ttgacggatg	480
ttccggacgg	ttctctctct	cgatagaggc	cgactgctac	ccatctgcaa	aggctacgaa	540
acagctgctc	acgagcctgc	cacacgggtc	gatgaagagc	agatccgcag	aatctgacca	600
aattaggtgg	tacaccgctt	gaagccgtat	cagtcgaatc	cggctcagtc	acgactattt	660
catcccgcct	tctctcattg	gccggtaagg	agagatgcag	tccaatcctt	catcgagaaa	720
gcctcctcta	tgccaaacgt	gaggaaaaac	cggctcgata	acgtcgcatt	tctcctgcgg	780
cgagagcttg	caggagggag	agcagagcct	ttccttctta	gccaatgtgg	cgacaaggaa	840
gcagaaacct	tctatcggca	aatgggatat	acatctatcg	cctccgcttc	gaacactcgc	900

atccccaagg	cggtccgctt	atgttttcga	acactgtctc	cgctatcatt	tgggctattg	960
ccccaccctc	caacacaagg	atcgccgtac	agagaaccgt	actacctgat	tcatggcgaa	1020
actcgtcttg	actccgattc	gactgccaac	actgtcaaat	gctgggtctat	cacgactcga	1080
aggaatcaag	cagacctgat	acgaggggaa	acagagtaag	gtgtgtaatc	agggctgttg	1140
cattagaaat	cggatgatgg	tattccatgt	tcatagccat	ttgtatatag	acgtcagttc	1200
gacgtaagaa	aagaccaatg	gtcattcgca	aaatgccgtg	caatgggtctc	taataagcct	1260
ctgggcgatg	ttgtcttctt	cttgatggca	tacttgctcc	ggggctgccg	aggtattctt	1320
ccaaatgtga	agacgctcgg	aataggt				1347

(2) INFORMATION FOR SEQ ID NO:1358

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2473 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2473

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1358

cagtgtgatt	cagcatgcct	tggtatagcc	attaccacga	tcatgggtcaa	tcaactgctac	60
gcctcagccc	caaagcagct	ttggtgaaac	ttgtagccta	gagaagaaat	agacgatacc	120
atcattcttc	gtgcagagat	gcttgtcttt	ctggatcggt	gatatttacg	ttgttgatcg	180
taacatcaca	catctcccat	tcgtaagctt	ttcgatctct	tccattacag	gcaccggctt	240
cgttgatcgg	cagagaatac	atgatcgagc	aaaccgagag	ctttcaagcg	atcctactct	300
tctgtgagtg	gcaaagaccg	attaccttac	cggttacacc	ggccggtttt	tggtctcgta	360
gcagcagagc	ataccgctct	tgccacctgc	acgataataa	gtaccgtatc	ttcccgcttc	420
accaatttgg	ctgtctgagc	agagcacctg	ccacatcaag	tgccgataga	gccagctttt	480
caggcaaatt	ttaggaatct	tcgcatagat	accgctttcg	aagagaatag	cctttccttg	540
atgtccactt	gatctacatc	cggacgaatt	tccttgattt	tgtcgatggg	agtggcgcta	600
gagaaaagcg	cacgagcgtg	gcaattttat	cgcctacttc	aagtcgattt	tgtctttgag	660
agcatcgccg	atcttttcaa	ctacgcgaga	agcatcccg	ctgagcctgt	aacagggtta	720
cgatgctttc	cttgttggct	acaatgccaa	gcatgatttc	ggcgatttta	gccttatctc	780
caccggcttg	ttcatggatc	tgcgtgaaac	ttgcagagtc	tatattcaaa	gtctaacatc	840
gataagaatc	tcattgtcgt	agatttcatc	catgttgttg	tcaacttttc	agcgggctgg	900
ggtagaacgc	cctgaggggc	taaaacacgg	ttgtgccgta	tttgtttcct	ttcttttgca	960
ttgtcgaaac	gtattgagtg	attttgtgag	ttttggagtt	gttatttgct	aagccccaat	1020
atccgacggc	ttctgccgga	gtggctatct	cacgacccat	ttccttggcc	atacgaacac	1080
tttttctacc	aattctccat	tagagcgagc	taaaactcct	ttggataata	tacattgtct	1140
tcgaaacctc	acgcacatg	tcctccatca	atgataccag	tgccgcgagg	ggaaactcat	1200
agcgtccccc	acctgctaca	gtatagtggc	atctgcgggg	atactttcgc	gaaggaaaac	1260
gaaatcacgc	atcttccgct	gataccgcca	tttacaccca	ttacgaagtc	gaagtgcata	1320
gggattggat	ataacctttg	cggtgaagac	gaagagccat	gtncgatcat	gccttgctga	1380
agacttcaag	ttcagggttg	atgccacgct	cgatcatttt	ccccgaaat	atttgatcgt	1440
gttttccgta	ttggtgaaca	cttcatacacc	ccgaagttaa	gggtgccaca	atccaaagta	1500
gccatttcgg	gaaaaagctt	gtcggttgca	gacgttcatc	attcgtcatg	cccacagcac	1560
ctcctgtcaa	ggctggatga	ttacatcggg	acataccgcc	ttgatggctt	ccatgactct	1620
ttgaagcgat	ttctatcttg	agtaggggta	ccatcatcgt	atctcaatgg	agatgaatga	1680
tgctggcacc	tgcatacatg	gccgatttgg	cttcagtaca	cactcttcta	ccgtgtaggg	1740

aacggccgga	ttatgctctt	tcagacctct	gcaccgcaga	tggctgccgt	aatgatcatt	1800
ttttccataa	tttcagtcgg	tataatgggt	ttacttattt	gttgcgctgg	caattagccg	1860
gtccacacaa	gtgccggtag	cacggcaaac	aacaataggt	tcgtcaagca	ctcggctgcc	1920
gactccgaaa	tatccgtacg	aggacgaatc	accttacgag	ttcgaatttc	atcttttcgac	1980
tggatatttc	cacatgagtg	atttcgcctc	agcctctata	taatctccgg	caaataaccgg	2040
agccaaaaat	tccacatttc	ataagcacag	aagaggcctt	catcaccatc	ttgcatgata	2100
aggagtttgt	ggcaacgtct	ccgaagagtt	ggagcatgcg	agccccatct	actaagtacc	2160
tccgtaatga	gcatcatgcg	cactcatccg	aagacggatc	attgagtcct	tgtcatagtc	2220
gtattggagt	tattgtgagt	agttgatttg	tctagagcag	ggagccgatt	agcggaggat	2280
atagtccacg	aatatgccgc	tggatggatt	tgttccatgg	ggatctgtcc	gatgggggtgg	2340
atttcttcga	ttctgccact	acacagtctg	ctgccattgc	catcaggggc	tggaagttct	2400
ggttgtgcct	ttatagatga	gattcccaaa	ttcatcgcca	acacttcctt	gataaaggca	2460
aagtcggcac	gga					2473

(2) INFORMATION FOR SEQ ID NO:1359

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 597 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...597

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1359

tttcatcatt	tttggttcca	aaatcgggag	gcactcctat	cgaatcacct	aaaagagcct	60
cgatattgcc	catgaagtgt	aaagaatcct	tggcagataa	tattcagttg	gattaaactc	120
catgtgaaag	cagatttaat	tctctgtttt	ttttgttggt	ttttatctaa	agtttatgtg	180
tacatttggt	tttcaaacct	caaaaatcaa	ttcgtatgga	ttttaagac	atcttgaggc	240
aacttcagag	agaatcgaaa	aacttagaga	caatttgcaa	acagaggagg	caacaagaat	300
gcacttatca	tgccatttat	tcaggcgatg	ggatatgacg	tgtaaatccg	ttggaagtta	360
ttccggaatt	tacttgcgat	ataggcacia	aaagggagag	aagattgatt	atgcaattat	420
gcgatgataa	gaacccatca	tttgattgag	tgcaaacatt	ggcgcgatac	ccttactctt	480
gccgataatc	actattaagg	tactttcatg	tttcgtctgc	aaaattcggg	atgctaacta	540
cggatatcatc	tatcgcttct	atacagactt	ggatcaagct	aataaaatga	tgaaaac	597

(2) INFORMATION FOR SEQ ID NO:1360

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 657 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...657

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1360

gggcaaaaac	tcctcgaaca	actgatcttc	acctttggga	gtagggccga	aataatcaaa	60
ggagttcggg	cgctcatgat	caatacggaa	tccacctctc	gactatggcg	tagttgtgct	120
tacgctgcac	caagtcctta	ggactcgggc	catattgtcg	cgcaagtagt	cgaagccgaa	180
ttcgttattg	gtgccaatgt	aatatctgca	ttataggcct	tgcggcgggc	atccgaattg	240
ggctgtgctt	atctatgcaa	tccacggtta	aaccatggaa	catatacagt	ggccccatcca	300
ttccgagtca	cgtttagaaa	ggtagtcatt	gaccgtcact	acagcacgcc	gttaccagtc	360
agagcattga	ggaatacggg	tagggtagct	acaatgtctt	tccctcaccg	gtagccattt	420
cggcaatttt	tcctttgtgt	agactgtacc	accgatgagc	tgaacatcat	agtgaatcat	480
gtcccacaag	tttcattgcc	tcctgccacc	cagtggtttt	ggtagacggc	ggtatctcct	540
cgatcgagac	gaaatcatgg	ttgattgcga	gatacacgatc	aagatcaggg	ctttgactcg	600
aatagttcgt	ttgggcgaat	ctgcgacagt	atctttgtaa	tagcaaagct	tcggggag	657

(2) INFORMATION FOR SEQ ID NO:1361

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1089 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1089

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1361

ggacactaat	ggtgaaaata	gcgaattgtc	ggtttgctgt	tgttataaaa	acaatatctt	60
tgttcccatac	gtagtgggtcc	ctgctcgtct	cgaacaagtg	agtgggggtgt	aagaggggaat	120
cgggtgagaa	tcccgcagcag	tcccgcctctg	taagctttta	ccgccgtgtc	ggttttgaca	180
tgcggactct	tgtcgcttcc	aaatgatgcc	actgttcatt	ctccactatt	agagggtggag	240
ctgaagggaa	ggcgcgacaa	acagaaaaga	gatgaagtaa	gccagaatac	ctgctctacg	300
agttgcctat	aaagtatgga	gagaagacct	cgaggaaagg	agttccccgg	cactaagaga	360
atagatctca	ggaagtattt	ttttacaata	actattacaa	tggaagaggt	aatccttcgc	420
atcgtaaaagc	gtgatgggtca	ttgcagtcgt	tcgatccgga	aaaaatccgt	caggcgataa	480
tcaaggctta	cgcgcaggag	gtgtgcacga	agaagctgca	cgtatcgaca	atattgtccg	540
tctgtaaccg	attttgctcg	tcagagcggt	gagcttgctca	ccgtggaaaa	atacaggatc	600
gtgtcgagga	ggaactgatg	cgtttgaaatc	ctttcatgcc	aaaaaatata	ttatctatcg	660
agagtggcgc	accgtagagc	gtgacagcgt	acatccatga	agcatacgat	ggacggcatc	720
gtaacgatag	agaagacgat	gtgaatctgg	gtaatgccaa	catgagttcg	catactcctg	780
caggcaaagt	atgacttttg	cttcggaagt	aaccaaggac	tatgccagca	aattctgctt	840
tcgctacgct	atagcagagc	acacagggga	ggagatatatac	atttcatgat	ttggactatt	900

atccgaccaa	aacgactaca	tgtgtccagt	agatatagca	gacctctacg	aacggggggt	960
ccgtacaaaa	aacggcagca	ccgtacaccg	cagaatatcc	atagctatgc	aacgctggct	1020
accatcatat	ccagaccaat	cagaacgaac	agcatggcgg	acangctatc	ccggccttat	1080
ttcttcatg						1089

(2) INFORMATION FOR SEQ ID NO:1362

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2897 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2897

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1362

tgcgatttct	tgtatctgcc	cggtgggttat	ccggagtttt	acctgccgga	ttgagtgcc	60
acgaatccat	gaagcggctcg	gtacggggact	atatcgagcg	ggaggttatg	ctctggccga	120
gtgtggaggt	atgatgtacc	tttgcgaacg	atacggggca	tggacggacg	ggactatccc	180
atgtgtggcg	tattgctgag	acggctacga	tggaaaggaat	gcgcctgcac	ctcggctaca	240
ggcgaatggta	tacaagggga	aagagctacg	aggacatgaa	ttccactact	cttcactatc	300
ggctctacgc	cgtccgtggc	acagcagtac	aatgtgcgag	gcgagccgtg	gagactccgc	360
tataccgata	caagaatctc	ttggccggat	atcgcatctc	tactgggggtg	agcatgacga	420
tctgtggatg	tggttcgact	gtggaagcga	aacgatgtaa	tctatgatat	atacgaagac	480
aggagacaaa	gaaccaccgg	catattccgg	ggggagcgtg	tgccgaaaga	tgatgtacgg	540
tggaaagccta	cggcacgatg	gatgagctga	atgctgccat	cggcatgacc	ggacattcct	600
gccggaggag	gatgagcgtc	agaccgtgct	gtacgatttc	agatgcggat	gatggcagcg	660
atgagtatag	tggccactcc	tgccggaagc	gtgagcagaa	tcccaatcat	ttccccgaag	720
aagcagcagc	caactcgagg	cttttatcga	caggcttttg	gccgaaacaa	ccgacaacgg	780
ctactcattc	ttccgggcgg	tacgccgctt	tctgctcatt	tgcagttggc	tcgacgatag	840
cacgccgagt	ggaaagaagg	ttgtggacac	tgcaccgatc	cgtgaagttc	cggatgcaat	900
cttgaagtgg	atgaatcgcc	tgtccgatct	ttcttcgtga	tggctcggca	cgaatgcatg	960
cagcagggtt	ggagcgagga	aagtggcata	gattcgccta	taagagaaag	aagaaatgac	1020
ggaaggcgga	agctacggcc	gattatgttt	gtcggcacag	gcagcgatgt	aggcaagata	1080
ttatcgctac	gggtttctgt	cgcatttttc	ggcaggacgg	ttatcatcgg	ccccgttcaa	1140
agcgcagaat	atggctttga	attcgttcgt	cacgccgaag	gtttggagat	cggacgagcg	1200
cagctgtgca	ggccgaagct	gccggatccc	atgtcatacg	gatatgaatc	ccgtgctgct	1260
caagccgagt	tcggtcatac	ttcacaggtc	gtgctcaatg	gccgtccgat	aggcaatcgg	1320
gatcttacga	atactttcga	cgagagggga	gggacgaact	gcgtacggag	gttacgccgc	1380
tttcgaccgc	ttggcttctc	gtttcggccc	cgttgtaatg	gaggagcggg	cagtatatcc	1440
gaattgaatc	tgcgcgatac	cgatatagtc	atatgccgat	ggccatccat	gcagggtgcat	1500
gcgtgatcct	tgtggccgaa	tcgaccgtgg	aggcgtgttt	gcttcgggtc	acggttctat	1560
catgttgctt	ctgccgaaga	gcgaaagtat	gtacgaggca	tcatgatcaa	taagtttggtg	1620
gcgatcttcg	ctttttcgac	gaagggaaaa	agatccttga	ggaatttgcg	gtattcccgt	1680
tgtgggagta	attccttact	ataaggatat	tcatacaggg	aggaagactc	cgtagcactg	1740
tcggtcaagc	agtatgctgc	cggaaggggac	gggtgaatgt	ggctgtagtc	ctgctgcatg	1800
acttatcgaa	ctaacggact	tcaacgtttt	ggaacgcgat	cctcgcgtac	acctttatta	1860
tagaacaata	cggaaagagt	gcgcaaggcc	gatattatca	ttctaccggg	cgcaagagta	1920
ccttggccga	tctctatgaa	ttgcggcgca	atggtgctgc	caagctatcg	tacaggcaca	1980

tcgcgacggg	acaacgggtat	tggggatatt	ggcggattcc	aactcatggg	catggagggt	2040
tgcgatcccg	accatataag	ggcgatatag	aacgcctgcc	cggctctcgg	ctgctgcctg	2100
taacgacgtg	atgacaggcg	agaagggttac	acgtcgcacg	gcatttcgct	ttctgggtcat	2160
acggatgaat	gcgagggata	tgagattcat	atggggcgga	cgatgctgtc	gaagggtgcag	2220
catctttctc	actgaatcga	ctctcggatg	gaacgaggat	ggatatttcg	tggatgctac	2280
ttgtatgggt	acttatgtgc	atgtatcctg	gacaatccgg	ccgtaataga	ctatctgctt	2340
tcaccgtatg	caacaaaatg	gaagagcgga	aaagcttcga	ctatgtccgc	tataaggatg	2400
acaatacgat	aaattggccg	accatctgag	acgatatgcc	gatgtccgc	gatttaccaa	2460
ctgatgaaag	acgatgatta	aaggacacgg	agatgacctt	accgtcacgg	ccccattcgg	2520
gcaaatttca	gttcgaatgt	ttataacgca	ccgagcgtca	gggattgctg	gatcaccttc	2580
acaggagatt	ggatagctcg	gttcctatcc	ggagccggag	ccttattctt	tggagaaagg	2640
tttggcgatt	atcacgggtat	agctgccgat	tcaatcagtg	tgaccagcgg	tgccacgaag	2700
ctatttatct	catagcgcag	gctttccgtg	gatcttcttc	agcctagtag	ttcccacttt	2760
cagcgaatat	gccgatgctt	gccggctgca	tggcatcgtg	tggattttat	ttccaagccc	2820
gaagaggctt	cttctcgata	tgtatggtct	ggctctgtaa	tccgaacaat	ccgacgggac	2880
gtgtttggaa	gcaagcg					2897

(2) INFORMATION FOR SEQ ID NO:1363

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1215 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1215

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1363

gtttggattt	gcaaaggggg	ggtttacgag	aaacgcgacc	tcgcccccat	tttgcagtgg	60
ccaaaaacca	aagccgtcgt	cccaatgcac	agggcggcac	aaccgtggcg	gtgatcgcaa	120
ccgtagaaga	aaaggtaatc	gctaacatta	gaaagacaga	caaaatgtta	caacccaaaa	180
aaacaaaagt	tagaagcagc	agaaaggctc	catgaagggt	tttgcccaga	gaggtaacca	240
gttgttttcg	gttcttttgg	aatcaagtct	ttgcagagca	agtggataac	cgggtgtcaga	300
ttgaggccgc	tcgtattgca	gtgactcgct	atatgcagcg	tcaggacaag	tatgggttcg	360
tattttccct	gacaagccta	ttaccaagaa	ggagaagggt	tccgtatggg	taaaggtaag	420
ggtgctccgg	aaggtttcgt	tctcctatta	ctcccggctg	aatcattttc	gaagtgggaag	480
gtgtgcctta	gaaatagcta	aggaagctct	tcgtttggct	gctcagaagc	tccccgtaag	540
actaagttcg	tggttcgtca	cgattatgat	atccaaaatc	aaaatgcgaa	ttgtcatgaa	600
gattgccgaa	attaaagagc	ttgcaacaaa	agagctcagg	agcgattgga	tgccgaagtg	660
gctgcttatg	accaaagtcg	aatcaacatg	cggtttcgcc	tttgatagtg	cctgctaaac	720
taaagcatca	acgtctatga	ttgcgcagat	gaagacagtg	ctgcgccaac	gcgaactcaa	780
taaaaaatag	agtgcacaca	tggaaagaaa	tcttagaaaa	gaacgtgtgg	gtgtgtctca	840
agcaacaaaa	tgtataagac	tatcacgggt	gctgtgaagt	ggaagagaag	catcctatat	900
atggtaagtt	tgtcaataag	acaaaaaaat	acacgcacat	gacgagaaga	atgaatgcgg	960
tatcggtgat	acggtacgta	catggagacg	cgctctctga	gtcgtacaaa	gagatggaga	1020
ctaactgaat	aatcgaaagg	gcaaaaataag	atgatacaac	aagaatcaag	actcgttgcg	1080
ctgacaacag	cggagcaaaa	gaagctctct	gtattcgtgt	tttgggcgca	cgcgcagacg	1140
ttatgcctct	gtgggtgata	tcatcgtggt	ttcggttaaga	gtgttatccc	ttcaagcgat	1200
atcaagaaag	gtgct					1215

(2) INFORMATION FOR SEQ ID NO:1364

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 693 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...693

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1364

ctgcggatct gtcgttgccg aaagtcggtc gatgcacatc cgacttgctc cgggtgtagca	60
agcactcctc aagacgttgg atgaaatgga aaagaccgta tcgagcaagc cttggcacga	120
aacggcagca acctttcgaa tgtggcaggg aattaggcat cagccgccag actctgtata	180
ataagatgaa acgctagggc tgtagcccct cttctatggg aagacggaag accggcagtt	240
tcggctgcat ctgttattta ccatcgatcat ggcggtgggtg ggtacttggg cggcgctgca	300
ggacattatg ccatcactgt ttttcagcc ggactcgta tctttccgcc ttgcggttgc	360
gtttacttta tcggcgccat cttcaagatc ttccctgctc ttgaatgcta tcgagaatgg	420
cgattattcc gtgcgctttt cgaaatggga ggcaatgtct cgcacgaac attcaaccgc	480
acgcttaatc tatcaaggag atcctcagcc gttctcgtga tgaggctata gccggcgaga	540
gtttctcgta catgtattgg aacagattcc tgcggcatc atgatgggtgc tccggaagga	600
tatgtctatt ctaccaatac agtgctgttg cgctcccg gttaccggt atcacacacc	660
ttcgatcagc taaacgtgtg tcgccgacat gcc	693

(2) INFORMATION FOR SEQ ID NO:1365

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 965 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...965

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1365

acttcgaaat	tgttatcggg	tgaaggcaaa	tggcgactcg	aactgccctg	caggctattg	60
ccacgcatcg	cggcggggaa	tacaactggg	cgcagcagat	accgtgcata	catgggtcaa	120
tggagctgtc	ggacttaagc	tttcgtacgc	cctcgtaccg	acaaacccat	gcagatttgg	180
ggatctgctt	atgggtgggca	gccttgtcaa	gcggaggata	cttcccttac	gaaagagggg	240
ggggcgttat	ctttctctcg	gaatggactt	ggagcacttc	gcttttcgta	ccgatattgg	300
tacggcaggc	attacgtttc	tccctttgct	gcacctttcg	ccattccctg	acgtatgaca	360
aacagcctct	tacgaacggg	tggggcgatt	atttcgtctc	tatgccgact	attcgtggcg	420
gatggcacga	agtgtttcgt	tgcggctgtt	gctcgggtat	ggttccagcc	ttcggatcgt	480
tttgcgatga	ccacgccttg	gaactgacga	tgcgtatcga	tcccaaattc	ccaatagctt	540
tctgaaaggc	aatcattgat	cttttcgata	tttgcgagtg	gattcctcgt	gatcatttag	600
tccggtaagg	ttgggtgaat	gccaaaagaa	agaggacgcc	aaagagctcc	aagctccttt	660
gacagtcctt	ttcgtttata	ttggaaggat	gtcgtttaca	gctatgcgat	gtccatttcc	720
ttcatgatct	ctgccgtgat	tccttggcat	ctccgagttt	gaggaataca	cccgttgctc	780
gtgttagagc	ggattgtcca	cacctgcata	accgggtttc	aggtcgaagt	tgcaatgatt	840
acttcggagc	atcgtccacg	ttcagcacgg	gcataaccgta	taaggcgtac	cctcagcatt	900
gcgagcagca	gggttcatta	cgtcgttggc	acgattacta	ccacggcatc	cgtctgagcg	960
aaatc						965

(2) INFORMATION FOR SEQ ID NO:1366

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 592 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...592

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1366

ggcttctgct	gtctgagcac	ccatcttttt	gggagtgggt	aagtagcgac	ttcgaatttt	60
gccattttcag	catcgtttgt	aggcttgatg	tccgtagcta	tttgaagtcg	gtacgctctg	120
ccataaaactt	gcagataccc	tcttcgtgat	tacttcttga	cgagccgtat	tgatcaggca	180
ggcaccctta	ggcatttgga	gaggagtctg	gcattgattg	attttacagt	ctcaggggtc	240
ttcggatgtg	aagcgaaact	atatcgcagg	tttcgaacag	agcatcgcga	gaagaacggc	300
ctttactcct	tccttctcga	tatccgctgc	agaaacaaat	tggcgtaagc	ataaatttcc	360
atgccgaagc	cttttgcgat	acgtgccacg	ttcggcgcta	cattgccgta	tgcgaggata	420
ccgagcttct	tgcccataag	tcagaaccgg	atgctccgtt	gaagagattg	cgatacatga	480
atacgagcat	cccattacca	attcggggcaa	cggcattcga	gttttgctcc	ggcgtattct	540
cacgcacaca	ttgtgggctg	tagcagcagc	caantctacg	tggtcatacc	cg	592

(2) INFORMATION FOR SEQ ID NO:1367

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 634 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...634
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1367

ggtaaattgg	aatttcattc	acaatattac	acaatctgct	taaagaaaaa	agagaagaga	60
ccgcgccaac	atTTTTtata	tgTTTccttg	ccaagaaaga	gagaactcta	cattcgaaat	120
ctctttgaag	acatcctggt	ctgaatttta	ggaatccgaa	ggccgtgtat	tatttttcac	180
tatatttgca	atacagaagc	tgattaggaa	ggcgaattcg	ggcgattttt	agcctgtaac	240
cggttctgat	cagttttttc	tttatTTTggc	atgtggtggt	gagtcgggat	acttttgtca	300
cttccatagc	gttccggcaa	gcccttacca	ctctcctccc	tcttctaatt	tccactaaaa	360
aacttgcacc	aaaaaagttt	tcaacaacga	agcgagtttg	gaatgattcc	aaataagcat	420
ccaaaaggga	gaggcatcca	agtaaaaaag	gatagaaaac	tgtcttccca	acttcgaaat	480
tcgTTTTcag	agagtcgaat	aacgatttgt	atataaatga	ctttcaattt	atatataaag	540
gttttcgttt	tatatataaa	tcgTTTTcaa	taaatatata	gatcgtaatg	attcgatat	600
aaatcgcang	ctcgaaaagg	ccttttccga	agcc			634

(2) INFORMATION FOR SEQ ID NO:1368

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 908 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...908
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1368

gaatccanca	tctccctctg	gtcgagacag	tagtagaagg	cggTactctg	taatcaaaat	60
gaagccatcg	ctatctatct	ctatcaataa	aggtgtccga	tcaggataac	tactccccaa	120
ctgtcagaag	cagagctaca	cggaagcgtg	atattacatt	tgccggaaaa	ttccgtctgc	180
gatctcttag	gatcgactct	ccggaagcgg	tgacatcact	tttgccaatg	ccacgatagc	240
caatgtctga	acgtcagcct	tagaggtagt	ggcgacatac	ggggcaatat	ccttccggca	300
ggaatgcaac	tctctcgctg	gccggttcgg	gcgacataga	ccttcgctcg	gtcatcctca	360
gagagtggaa	gccggtatca	gcggaagcgg	agtataaaga	taaagggaca	aacagccttt	420
gccgcgctga	aatgcagcgg	agcggagacc	tcgaatgccg	taacctgtcg	gcccacaacg	480
ccgacgtaag	atcagtggca	gcggagatgg	caagctggct	gttaccgaaa	agctggatac	540
aacctatccg	gatcagccgg	ctttgtctgc	tatggcaaac	cTgtcatcgt	acacacaaag	600
tcagccggtt	ttcctctttc	cgaatggttc	cttaaataca	cTgacagcata	gattagaact	660

tttcatagac	gcgagtagca	ataggggaga	cattccatca	gagagaatgt	actcgccctt	720
actacatttg	agaagaaaacc	ggaggtctta	tgcgggctcc	ataaatgaat	tttgaaacag	780
ccccgatca	atcgtggatc	ctttccccc	actcaatttg	tttgtatttc	atccggcata	840
aaaatggaat	ttttaattgc	atttataggt	agggtgtgca	aagcgcaatg	gtagtttcta	900
tgtttggg						908

(2) INFORMATION FOR SEQ ID NO:1369

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 708 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...708

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1369

gaagtgaccg	gctttgggta	tcgatcgga	tccgatattt	ggagcacaag	tcccaccttg	60
cttctcgaca	gccttgctgt	tcagcagggt	gctaccctac	tttacctgcc	ggatgccgtc	120
tgctgatggc	caataaggcc	cacatcaggt	tcggggctgc	ctaattggcg	agggcaatcc	180
ggccaagcga	gtgatgtaga	gaatctgcgc	cacgatctcc	tcgtacagga	tgtaccttat	240
accctgttcc	cggacagtgg	ggcgggtattc	ttttctctga	agagagtcgt	ggcatgaact	300
tcgttatact	actatccgca	acggtcgatg	gggaatcatt	gccaaggcgg	taaggatgtc	360
accaccccaa	aattgctttt	ggagggctgt	atgtcaccaa	tacgaaaggc	tccggtctgg	420
ctgcttccgg	tggctatatc	ctattctcaa	cagtgcagtc	agcaataacc	tcggctatac	480
tgtagccctc	tcggcagcgt	atgcgaattg	acccaaagca	ctgtttgcaa	tttctatagt	540
gggacaaccg	ccaaggggaa	gccttgcgct	acgtgacggc	attcgctccg	atgtggcagg	600
cggatccctat	actcctcatc	ggacagtcgt	tgatttgcac	agtattgtcg	atggcagtcg	660
gtctgtggtc	aaacaggggag	ataagaagtg	gaggagaaat	cagtctgt		708

(2) INFORMATION FOR SEQ ID NO:1370

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 772 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1370

gtgtgacttc	cgacagaaca	gttgtgagca	atctgtacaa	ggttgtctac	tttactccgc	60
gatgtatgat	cgttgaatcc	ataacagccc	tgtcgataaa	gtgttggcac	cgatttcgac	120
atcatcttca	atgataacgt	tccccagtg	ggaatccttg	tgtagccttc	ggcattcgga	180
gcaaaaccga	atccatcgct	ccgataacgg	ctcccgaatg	aatcacgcaa	cgcgaaaccga	240
tggaaagcca	tcatagaccg	tcacatgggg	gtagaggatc	gtcccccttc	caacgacaca	300
ccgctacct	cataaacatg	cggatacaag	ctacagcctg	taccagcgat	gcccccttccg	360
acacgtaggc	aaaagctcct	acatagcaat	caccggcagt	atcaccgatg	gatgaacgaa	420
agccgtggaa	tcgactccct	tctttggggc	ttcatgctgt	ccaccaactg	cattagttgc	480
gccaatgctg	ataggcattg	ggaactcgta	tcagggtcgt	cttcaccgat	tcgcgcggtc	540
gaagtcctga	ttgacgagta	ctgcatcgga	ttgtgtttgg	tacaaatatg	ttcgtactta	600
gcattggcta	aaaacgagag	acagccacta	cgaccttctc	tatcttggca	aaagtcgtgc	660
agtcgcacct	tgggattgcc	ctccacgaac	cgtggaggta	gtcaagctat	ctgggtgggt	720
gtaaattcca	tgtgacgggt	taattagggt	acaatggatc	ttaaaacatt	tt	772

(2) INFORMATION FOR SEQ ID NO:1371

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1455 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1455

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1371

ggcaattggc	ataatttttt	ttgcagacaa	atccgcctct	ccaaagtctc	agaccggaaa	60
tgtcttgatt	gcgagcgctg	ttttcgggaa	aagcggcgga	gaattttttc	cctgcggcgc	120
gagaattttt	cacttcccga	acaaaaagaa	aaagtctccc	cgccacgttt	ttcagagcgt	180
ggaaatagaa	aattatgcgc	gtaaacccgt	ccttctctct	taatacgata	gcgcacgaaa	240
tgatggctct	cacgcgaaat	gaactttggg	gagcttgatt	ccgagacaaa	taccctcatc	300
ccctgccaa	ctccatagat	gcaaaaaccg	aaagtgtgta	acttgtaag	taatcacggc	360
cgacaccggg	gtctgcccgc	ggtactaagg	aacattccaa	tgaattcaa	ttatgatgtc	420
atcgtgggtg	gtgcggggcca	tccggctg	aagcggctgc	ggctgcggcc	aagctcgggt	480
cgcaggatatt	ctcatcacgc	cggacatgaa	caaaatagcc	caaataagct	gcaatccggt	540
gtcggaggaa	tagctaaggg	ccagatagtc	agggagatag	acgccttagg	ggacgaatgg	600
gtatcgtcac	ggatgctacg	gccatccagt	ttcgtatctc	aatcggagca	aaggccctgc	660
catgtggagt	ccgcgcgctc	agagcgccgc	atgcgcttca	tggaaagcgtg	gcgcgatata	720
gtggagcacg	agcctatctg	tacatgtggc	aggacagtgt	acgctgcctc	tctattcgtc	780
aggggcccgtc	gcgggagtcg	tgacggctct	cggggtagag	tttcaggctc	gtacgtgggtg	840
ctgactacag	gcactttcct	cggagggtgtc	atgcacttcg	ggagcgtatg	atcgaaggag	900
gacgaatagc	cgaaccggct	ttccacggca	tacggagcag	cttcgtgatc	tgggcttcag	960
aaccgacaga	atgaagacgg	gactccggca	cgaatcgacg	gccggagcat	cgatttcagt	1020
ctgaccacaa	gcagtcggga	gaagaggatc	accaccgttt	ctcctatatg	gatacgcccc	1080
aagggtgcta	cgccaaagga	gttgctacgc	actctacacc	aatccccggtg	tcatgagata	1140

ctaagcaaag	ggttggatcg	ctccccctg	tacaacgaca	gatccaaagc	atcggccctc	1200
gatactgccc	cagcatagag	accaaatcgt	caccttcgcc	gacaaggaga	tgcaccaact	1260
gtttctcgaa	ccggaggaga	gaccagtaac	gagttttacc	tcaatggctt	ctcctcgtct	1320
ttgccttgga	gattcagctc	gaagccctga	aagccattcc	ggctcttcgc	cagtgcacat	1380
ctatcgtcgc	gggtatgcca	tcgaatacga	cttcttcgat	ccacacaatt	taagacatac	1440
gcttgaaacc	aagcc					1455

(2) INFORMATION FOR SEQ ID NO:1372

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 481 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...481

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1372

gagagggaaa	agtgctcaga	acaagtaaaa	aaatgaccgt	catagctatc	atgaatgaag	60
aacggcaacc	tgtgttctct	ttcgtttttt	gatgagtaaa	ggtaaaagca	aaatctttcg	120
atatgggtca	ttttcgaagc	tgaaaaaacg	gaatattcac	cgaaaaatat	gcgcaaaaaa	180
agttttcaac	aacgaaaagt	gtttggaatg	attccaaata	agcacttctg	agagatcgaa	240
attcgggtaa	agtacgtaac	atgacagcct	ttttcagatc	gaaaagctct	ttttttagtt	300
cgatgaacaa	tctatatatt	aatcattttt	gatttatata	taatcgtttt	cattttgtat	360
ataaatgatt	ttcaataaat	atatagatcg	aaatgatttg	tatataaatc	acaacttcct	420
aaaggctttt	tcttgaggga	taacagaggc	accatcggat	tttctcttga	atcgacggtg	480
c						481

(2) INFORMATION FOR SEQ ID NO:1373

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 741 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...741

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1373

ggcgatgagt	tcgacttctc	cgtattggca	ctttatgatg	aaaaacgcta	tcagttggga	60
ggaggcgtct	ataatgtgca	gaaggaaaag	ttcaaactaa	tgttttctat	cagagtgata	120
gtgcaggcgt	ctaccaacca	tatatcatga	aggcaagatt	aaggacagct	tgcttctgcg	180
cgtgttgggc	atggacgact	ggatgccaaa	caagagcctt	accctgatgg	tacgtacgac	240
tttgtgatgg	ctatacgatc	ctccctcaga	aaggagttgt	gatcctccct	accgggagcc	300
gttcggaaaag	acccttgccg	atgctgttgg	cgatcctgta	ttgcgaaaaa	gtactgcttc	360
caagagctat	acgatacaac	ggcagtggtc	gccagcaagt	ggcagagaag	aacaaattta	420
tcttccgagg	cgaatacaaa	gttctccggg	cggagacatt	tctttgggag	ctatcaacgt	480
aacacccgga	ccgtcgtagt	gacggccggc	ggtgtcaagc	tgacggagaa	tgctgattaa	540
cggtagacta	cctctccggc	aacgtatcga	tcatcaatga	agcgattcct	cttcgggaac	600
tcccatcaat	gtgtcgctcg	agaaccgagg	gctgatgata	tgcagcgcaa	aacgatgttc	660
ggtatagatc	tgaactacaa	cttttcaaag	acttcaccct	cggcgggnacc	ttcatgcacc	720
tgagcgaaat	gccgcgacga	c				741

(2) INFORMATION FOR SEQ ID NO:1374

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 639 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...639

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1374

tcatcatctt	ccaaatcatc	gtcaacctgc	gcgacagcct	tcgcaatatt	ccaaagagag	60
ctttcttgtc	cttacctcat	tgggagccac	tcatgtctac	tgatgcgtca	tctggtccta	120
ccggccatta	ctcccgaagc	actctccac	tacgagtggc	cattgggaca	gccatatcag	180
tactcttcgt	gacagaacat	acgggacgaa	taaagggcat	gggattcttc	attgtcgatg	240
catggtgcgt	atcagctata	cggagatgta	cgtgggcac	gtggttttag	ggatgcaggt	300
tttttccttt	ttttgctcgt	ggatggtctt	gagaccgcac	tatcagatgg	aggaacagtt	360
agccatacaa	tcaaagaaat	catcattcaa	caaacaataa	cgatcaagaa	atgaaagtaa	420
aacatctatt	agctgcatcc	tgatgatgct	aggaacaggg	aatatttgcg	cccaaaagtc	480
cgcaaacagt	ttttcaatgc	aatcaaagaa	cgggtagcc	tcagtgggta	tgcgcaagcg	540
ggttttcctc	ttgtggcttc	cctacggcga	gttccgaaaa	nggagaacac	acacattcga	600
tgtaaagcgt	atcaaccttc	gtgccatgtc	gcatacga			639

(2) INFORMATION FOR SEQ ID NO:1375

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1120 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1120

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1375

ggcaaaaggt	gttcgctcgc	cggaagctat	tcgtggctcgt	atacagggtc	ttggcgccag	60
aagacggtag	accttcccgc	aggtagcгаа	tatgttgctt	ccgtcacttc	caaagcacgg	120
atatgttcta	catcgacctt	gatgagggtga	gatcaaggcc	aatggcaagc	gcgcagactt	180
cacggaaacg	ttcgagcttc	tactcatgga	gaggcaccag	cggaatggac	tactatcgat	240
gccgaggcga	tggtcagggt	tggctctgtc	tgtcttccgg	acaattggac	tggcgacagc	300
tcatggcggc	accaacgtag	taagctcttt	ctcatggaat	ggatggcttt	gaatcctgat	360
aactatctca	tctcaaagga	tgttacaggc	gcacgaaggt	aaagtactac	tatgcagtca	420
acgacggttt	tcccggggat	cctatgcggt	gatgatctcc	aagacgggca	cgaacgccgg	480
agacttcacg	ttgttttcga	agaaacgcct	aacggaataa	ataaggggcg	agcaagattg	540
gtctttccac	ggaagccaat	ggcgccaaac	ctcaaagtgt	atggatcggc	gtacggtaga	600
tttgctgcg	ggcacgaagt	atgttgcttt	ccgtcacaca	attgctcgga	tttgaactac	660
attcttttgg	atgatattca	gttcacatgg	gtggcagccc	caccccgacc	gattatacct	720
acacgggtgta	tcgtgtggta	cgaagatcaa	ggaaggtttg	accgaaacga	ccttcgaaga	780
agacgcgtag	ctacgggcaa	tcatgagtat	tgcgtggaag	tgaagnacac	agcggcgtag	840
ctccgaaaga	gtgcgtaaac	gtaactatta	atccgacaca	gtcaatcctg	tacagaacct	900
gacggcagaa	caagctccta	acagcatgga	tcaatcctta	aatggaatgc	accggcatct	960
aagcgtgcgg	aagttctgaa	gaagacttcg	aaaatgggtat	tcctgcctca	tggaagacga	1020
tcgatgcagc	ggtgacggca	acaattggac	gacgaccctt	cctcccgtag	gctcctcttt	1080
gcaggtcaca	acagtgcgat	ctgtgtctct	tcggcttctt			1120

(2) INFORMATION FOR SEQ ID NO:1376

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1418 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1418

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1376

ttgagtgcctn	cggtaccgat	agacgaattg	aactcattta	tcggctttgt	gatgagttag	60
gacttgccgg	aagaggatcg	ggattttntg	cgtaccatca	gcacaaagct	tttcaccgtc	120
ggatccctat	ctggccacaa	atcaggaagc	agagagctga	tggaggagag	tcgagtgcac	180

cccgaaacga	tagaactgtg	gagcaggaaa	tagatcgttt	ggacaatgcc	attcccaaga	240
tgacgctttc	atcttgccgg	ggggtagccg	ttctgcctct	ttggcgcatg	tttgcgtacg	300
gtatgccggc	gagccgaacg	tcatatatac	cgcttgagtg	aagggcgctg	gtagaggagc	360
ctgtgatgcg	ctatatcaat	cgtctgagcg	atatttcttt	gctctggctc	gaaaagaagt	420
ttggcgtagc	accggagggtg	aattattttg	gataagacct	gcgattgaga	aaaggctgta	480
gaatcaattc	ggggcttaat	aaagaaggag	cgagaaaagg	cttcggatat	taggtttagc	540
agaaaaatct	ttttttatct	ttgctgcttt	catcgaccga	ttatatcaaa	taaaaacaaa	600
tgattgcttt	ccaagccctg	caagccatct	ctccgatgat	ggccgggtatc	gcaacaaagt	660
agaagtactt	agtcgctatt	tttcagagga	tctctaattc	gctatcgtgt	aaaagtggag	720
gtggagtatt	tcatcctctt	tgcaatgaat	tgccctcgct	gaaagatgtg	tgccctccat	780
ctttgaggaa	gagttgcgcc	gtatatacca	agacttttagc	gagaaggatg	ccgacgtgta	840
aaggaaatag	aggcggtaac	gaatcatgac	gtcaaggctg	tgagtatttc	ctcaaagagc	900
ggttcgaggc	catggggata	cgagatgcca	agaatttate	catttcggtc	tgacctcgca	960
ggatgtaaac	aatacggctt	cccgatgatg	atacgcgagg	caatgaccga	ggtttacttg	1020
cccgccttaa	ggagctgggtg	gagcagcttc	atgccttatgc	ccttcagtggt	aaagatgtcc	1080
gatgctggcc	aaaacgcgatg	gacagccggc	gtcgcccact	cgcttagaaa	ggaaatagaa	1140
gtattcgctt	atcgcttgcg	caagcagatc	gacttggtgt	ggaagtacct	cattcagcca	1200
aattcgggtg	tgctacgggc	aattttaatgc	gcatcatgtg	gcttatcctg	atcatgactg	1260
gagcagattt	cggcgctcggt	ttgtaacttc	tctcgggctt	gaacgggaag	aactcactac	1320
acaatatcca	actacgacaa	acatggcagc	cttattttga	tgccctgctgt	cgatcaattg	1380
tgatactgat	cgacctctgc	cgtgaatttt	ctggcaag			1418

(2) INFORMATION FOR SEQ ID NO:1377

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1377

tccaatcgta	ttccgcttca	tcaaacgggt	tggtctgggc	gcgaattaat	tcttttcatg	60
gcatgtgggg	agatcttact	ccccataata	agcccggacg	gtcggtagtt	ttctctttcc	120
cgaaaatact	atccccatga	atcatactgg	tacatggaag	ggagcatagg	tctggagaat	180
atcttccggc	tcctgccatc	gaatacttcc	gacgcttcac	ccaattacaa	acgactccga	240
ataaagggga	gtccgtgctc	gcttccagat	cactttctga	cctctaaagg	aaagggaat	300
gccgaaactt	ttcgttctga	catttctctc	tcttcgaagc	gatcttaata	gaatcagagc	360
ttgatgaagc	gttcggccgg	tgtgctgcct	tggtcatgag	tttgatcaca	taggccccgg	420
cggtcaaaac	cttcacgccg	acatgcgagt	attctccata	gagagcacca	aacgacctga	480
aaaatcaaat	tccggacacc	gaagtacact	tcatgcttaa	tattcagtac	atccttcacg	540
gattggggta	aacccccgaa	tcagaagaaa	aatag			575

(2) INFORMATION FOR SEQ ID NO:1378

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 576 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...576

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1378

gcgatagaaa	tggttcgtcac	ctcgctaccc	gttccgcatg	ttgtgggcaa	atgatcagtt	60
ctttctcttt	gataagaggt	attttgcggt	cgaatgcacg	agtacatcat	ttaatccttt	120
cagaacgaaa	agtttagaga	tgtcaatacc	gtacctcctc	cgataccgat	tacgcggtcg	180
aactggatat	tacggagtct	gccaagatgg	tattcatcat	ttcgtcagaa	ggctcgcctt	240
gccccatttc	tcctgcataa	caaaatggca	ggggagctgg	catgccttca	tataggttca	300
tagatgaact	cgttggtaat	taccaagtcg	cgttctccaa	gacgaattcc	ttggcaaatt	360
ctgcaaaagt	gtcaaagtga	tgtgttacac	tctgagtttg	aaaagttgca	taatagtatt	420
attggttttt	ggaataatcc	taactttttt	tcttctcttc	ttatccgaaa	cgtttgcgga	480
gatgtttcgt	agttcctctc	tgaaatccgg	gtgggctatg	gcaataagag	cttctgctcc	540
tggcgcaaac	tcttcctttg	agttgggctt	ataccg			576

(2) INFORMATION FOR SEQ ID NO:1379

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1665 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1665

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1379

gaagaagagg	cttacttcat	tccgggggaa	ttcgaatgcg	agggagattg	acggataagg	60
cgggtgcggga	tttgaaggat	gccgtattct	ccggtatcgc	atgccttgcc	cggaatccgg	120
agatatggat	aaggaagctt	accgtacgct	tttgaggaaa	tcatgcgccg	gatagattcc	180
gggggtattgg	aaaaggggtt	ttatcccgcg	ccttgaccct	taagaggggc	gattccggat	240
tctccacggt	ttttcttatt	gggagttgct	ccggagggct	tatccccatg	ctttgttttc	300
ctttatttta	ttccgggaaa	gggagtatgg	gcgggagcga	gtcggaaactc	ctgttggatt	360
atacgaaagg	acgtgtaaag	acgatggctt	tgccggaacc	agacccttat	ctttcgaagg	420
cgagtttgctt	aagccgtgga	ccaaaaagag	ataagagagc	aaggagtggg	cagggactat	480

atcaggggaag	gcttgagaac	cactgtcgca	gcgtggagat	gtcggagacc	cgtacctttt	540
ggccgggaat	at ttgccatt	tgtgtacgga	ttttacggct	ttgaccggga	cggcttagaa	600
agcttgctca	aggcgcttca	tcctaccccc	gctctcgcgg	attcccccg	aaggaagctt	660
tggcgtgtat	ccgggagggtc	gaggtgatga	acgcaaattt	tacggaggat	at ttggggcc	720
tgtgggtaag	gatgcgcgag	attgtatgtg	aacatccgct	cgatggaatt	gtttcccggg	780
gcatccggct	ttatgtggga	ggaggtataa	acggagattc	ggtattcgaa	gacaatggga	840
agagacctcg	gataaggcgg	ctactctttt	gaatgtgctt	ggatacattc	cgtcggagat	900
aaggcggact	ataaatgata	atgcaagatg	aggattcggg	ttattcggat	aagaaaggcg	960
taagcgtatt	gatggattta	tcgagatgaa	gggcatacgt	aaactcgtta	tgtcgcccg	1020
ttcgcgaaag	ctcctcttct	gttttctttc	tcccgggaatc	ccgctttcga	gaaatacggg	1080
ttgcggatga	gcgttccgcc	gggttttttcg	ctctcggatt	ggctttgcct	cgggtgaagc	1140
cgtaggattg	ggttgtaatt	ccggtacggc	catgttaatt	atgctcctgc	cgttgccgag	1200
gctttttaca	gggggattcc	tttgccgcgg	taacggccga	ccgtccggcc	gaatggatcg	1260
accaggacga	gggaagacga	ttcgacagga	gggagctatg	gccggtttcg	ttaagtcgta	1320
ttgagcttga	gagcggaatt	cgatacttcc	gcctcggcat	ggtatgccaa	tcccgtttga	1380
atgaggtgtt	gaaccatgcc	ctgatgcccc	ggcgaggacc	ctacacatca	atatgtcggt	1440
ttgcgaaccg	ctatacggga	cttcctccgg	tattccggaa	aagagcgggc	gataacgttc	1500
gtgaggggaac	ggcaagaatg	ccggaagagg	tatgggatat	gctcgtaaaag	cggtttttgg	1560
aagctcccga	gtgatgatcg	tcccggtttt	tatcctcccg	acgaagacgt	gtccgccccat	1620
tgcaggatat	atgcaaattt	cccatacggg	ttgtttgcga	gagtc		1665

(2) INFORMATION FOR SEQ ID NO:1380

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 734 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...734

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1380

gggcttccat	ttgggcatag	tctgtatcac	gcggaggggct	tccttgtcag	tgcagggtca	60
atacccttaa	caacagttgc	ttgtgtcaca	gaaccatctt	ttcgaccacg	aaacgaacga	120
ttacettacc	ttggatgccc	at ttcggagc	ctgctcggga	tagaccaa	at ttactaag	180
ccatttagag	agagcatata	accacccggg	aactctgccg	gactttctac	cacttcgtgg	240
at ttttcctc	ttcttcctca	actttaacgg	gggcaacggg	cgcaggcggg	ggcacggttt	300
gctctcatcg	acagagacca	aagcgatttt	ctccactttc	tgggtgtatc	taccacctta	360
aattcttccg	gcagctgtac	ctcctgttgc	tgggttgctc	cggctcgggc	tgtcctggct	420
ccggctcggt	ttcttcgagc	agacagtttc	ctccatgtcg	gcaatatcca	ctttatcgcg	480
tgtataggcc	ctatcttata	gtaagtacga	tattccaaag	ctacatacac	gatcgcgagg	540
ctacgacaag	ccccaaaagg	aagttcaaac	cttttccctt	ctccaagtgg	ccttaggcga	600
tttcttgatt	tccatatctg	atagttattgn	ttttgattct	tgtcttgggg	caaaaataca	660
aagttttttc	atncccaatt	cgttttggta	gaaaaaatca	ggcgtatggg	gcaaaattgc	720
aggctgcaaa	aatc					734

(2) INFORMATION FOR SEQ ID NO:1381

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 765 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...765

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1381

agcggattgt ctttttatag atgtacgata gtaaaaactt ggaaataacc actcgatcta	60
gcccatacta agaagaaaga gcctcatagg atcggcagac gatcccatga ggccccaac	120
cggatatcgg caacggctaa aagcggtagc tatgcccacg aagaagtcac gattataagc	180
gtattcggtta tttccctttc tcttagagcg gtcgtcgaag aggattgcct attgtcggtc	240
agtgcgggaat atcagaacct ccacctgaca caatatccac aaatccatgt tcatgcctat	300
ctgtatataa taacgcttat agtggaatgc ggctattatg tttccccgat gtcccagcgg	360
atatttggtg ggccaccaag cgttgggcca aaaactctgt gctgtagttg ttcggcttcc	420
atccttccaa cttctgccga ttgtaccata tataccgtat gcaaggaaaag gaccgccttc	480
gatcgaaacc ccatgtcatt catcaggctc aaccgcatgc cggcattgat cggcagttga	540
gatagtgcaa gcgagtggaa accatcgtaa tataggtagc aggaaccatt cgggtatata	600
ccattcgggt ttggagccct tcatcgata gttcagaccg gagccaagta gaatcctctt	660
gatccgatca tgaattcggc agcggcccg cccgcaggcc gacattcatt tgggtgtccca	720
cacatatccg tctctttcat gctctgattg ctgcctacga agttg	765

(2) INFORMATION FOR SEQ ID NO:1382

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 573 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...573

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1382

ggccgtaacc tgtttagaag atctttatgg acttgatagc catattcgaa catcaactgt	60
ccggcgtgag caatgatagg caaagattag acaatgtgaa gaçaaaacgg aacgacgaga	120
gaagaatacg aatctcctat ctgttgagaa tagcggatgt accgtgggtc tgctttcggc	180

taatctcccc	ttggcaatgc	caagcatcca	ttgacaaaag	tgtatgcgac	actgtgactg	240
aaggtaagcc	ttcgaaagga	gaccatccgc	agaggctaag	tatattatcc	gcagtacggt	300
gtgaggagat	gacggatcca	caagcaccag	atcggcatag	tagccggacg	aatgtatcct	360
ctcttctcta	tggcgaagag	agtggccggt	attgagccgt	tttgcttact	atttcttcga	420
tgctgaatat	gccttgattg	cgagttcgag	caaggcgagc	aaggagtgtg	gcacgagtg	480
cccgccgat	caacctgcaa	gcaactgcct	tctttttctc	ttaagcagat	gccgggcatg	540
atccgtagct	ataatatcga	taccgttcca	ttg			573

(2) INFORMATION FOR SEQ ID NO:1383

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 915 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...915

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1383

tcgatacttt	tgtcagaaaa	aatttcggcc	gagatcccgc	tccgtttgac	acatcggctg	60
cttgttcgta	caaagattcg	tattcggact	cctgaagtca	cggatgaggg	aaacgaactc	120
accaagacgg	cgtcgggctg	tagcactaga	tcgggaagac	ccttctgcga	ttcggacagt	180
acgtcccaca	acgaacagaa	gaagccgtgg	ctatctcggt	aagacgagac	agagtgggat	240
ctcctttcct	cgcttgggat	aattgattac	acgcctgagt	gcttcgtcat	catiggattt	300
acgattagac	gaaaataggc	caggacgtcc	ttgatctctt	ttccgaatag	aacgaaagcc	360
caccgtatat	acgaaaaggg	atattgtgtt	tggaagtgtc	tcctcgaaaa	ctcggctctg	420
cgcattagt	cggtagacaa	tgcgaaatcg	gaataaggac	aatgctcttg	catgcgtcgc	480
tcgacgatcg	atccgctacc	gtataagcct	ccaaataccc	cgacagacaa	cccgtcaggg	540
aatacgtcta	cctacttggt	tgttcgaaaa	aacttgcttg	gggattcgcc	ctcattgtga	600
gcaatcaagc	tattggcagc	attgacgatg	ctctgtgact	ccgatagtgc	tcctcaagtt	660
tgaaaagt	gctcccgggg	aacgacttga	aaagcccaga	gtgtttttcc	acttgggctc	720
cacggaaact	gtataactct	gagcatcatc	ccccacgacg	aataccttgc	ctttctcccc	780
catcactgcc	tggcaatcaa	atactgtgca	aagttggtat	cctgatattc	cgtgatcaat	840
aaataatcga	tgcggtcacg	gtaggtctgc	aagacatccg	gaaatcacga	aaaaggacat	900
tgttttgaaa	agcag					915

(2) INFORMATION FOR SEQ ID NO:1384

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1384

```
taggatgggc ttttgagaaa catttttaggg atttatggga aaaaaaatca tagatgcctt    60
cacatcatat acaagacctt gtgttatagt tgtagttgag gctctttttac tggtaaattct    120
ataatatcca atcatctatc aaataaaatc aattttcagg ggtgctttcc actgatattgg    180
ttcgggaattt ttttcgatta gcactagaga tagaaaaact tatcaaacad ccacgtatag    240
aatgggtgata gtgaattaaa tattcaaaaa aataatgttt cgaatatgat tgaaagatgc    300
tggagatttta tcgaagcagg agagagaaaa ttattattga gggatgcac tcacagaaga    360
ttttttgaga aatataaaca aacaagattg tctataatag gattagacaa caaaagggat    420
ataaatgata ggctggattt gaaatgaaga ctacccgtga ggaagtctct aaaaaaacag    480
aagatgaaaa aaacgaatta atgaaatata ttatgggaatt atcgagtgct gtaaaagaac    540
attttaaggt agtgaattca agatattgaa gatgcaagga taagtgtgcn atctggtaga    600
agaattttca ctcaaggagt aaaggt                                     626
```

(2) INFORMATION FOR SEQ ID NO:1385

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2430 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2430

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1385

```
cactattctg catgaacttc acttgaacag cttgtactga tattataagt gatcagttta    60
cttacaaaga cagcacatag agtggttcaga atatatcgca agatggtcga cataagacct    120
cccgtctgac tcacgagact aaaacaagta ctaacaaagt tttgttctta aactcttcaa    180
acaaactctc tgcagctaac tatccttccg gataactaaa aaagaagcga aaggagtagt    240
attagtacgt cttaccggct tccctatagc aaaggaaagc atttttttct tacaaaatta    300
attctaacat tattccacca tcttctacgt atttatacgc agaaagcgaa caaaaaccgc    360
actactcaat aaaaaatacg cgatattgac cccgcgagag atgtagtcat gaactacact    420
caatgatact tctcaggaaa tccattttgc tccaccagtt attcaggcaa aatggaatta    480
ggccgatctc gattcggatt cctattttta agcattcacg agattgtcgc cggcaggcgg    540
gcatctctcc atctaactcg aatctcatat ctatatagct gtctgttgac attcaatatc    600
atctgctttt ttgctctgct tagcaataga aaacgtgcac cggttcccaa acatacgcgc    660
tgaacgagag cagcatagcc ttcttacttc ttttctcctt ttacattgag ccttttgggg    720
cgcaaaggta ataataagaaa ggtaattcca atcgtctatt aaattttaat tcaaagggta    780
ccgatagttt acgcgcgcga attttctcgt ttacgacgcc tgaagggtg gcggagattt    840
tttttgtttt gggtcgggaa gcaaaaaatt tacgcgcgag aagaaaaaaa tctcgtctca    900
```


catttgcagg	aaacacgcac	ccgcaatcga	agatttttcgg	tgcgtatttc	tgagacagca	960
ggttattgac	cgggacatcg	agcaatggcc	aaaccttatg	atttctatat	cgtttggaaa	1020
ctgtcctaca	tcacgtcttt	accatacatc	caaggcatac	catcttagag	ctgccaccgt	1080
ctatcccgac	accgctctcg	ttccgtttct	cattatgcgt	ttttcatttt	cgaccatatg	1140
atttcctgtg	aatatatatt	ccacaggaaa	ttgtttctat	gtttgcaccg	gaaaaacaaa	1200
caaaaacaga	aatcaaatat	gagatcgtaa	tcgtaggcgg	agtcgccgga	ggagctacag	1260
cagcagccag	actaggagaa	tagacgaaaa	agcagaaatc	atcttgttcg	agaaaggaca	1320
gaaatatcgt	atgccaaactg	cggcctgccc	tattatatag	gtggggtaat	caagagagag	1380
aaaaatctttt	cgtgcagaca	cccgaaaaat	tcggccgact	gtgaacttgg	atgttcgggt	1440
acagagtggg	gtgctgtcca	tcgatcgctc	gacaaacaga	taagagtgcg	cgaagccaat	1500
ggtagagaat	atagttagcc	tatgacaaat	tgctgctttc	ccccggagcc	ttgccttttg	1560
tccctccatg	ccgggggtag	atagcccggg	agtattcacg	ctacgcaacg	tagaggaacg	1620
gatgccatta	aaagtatttt	ggacaccac	aagggtgaaac	gtgccacgtg	gtgggaggtg	1680
gatttatcgg	cttggaatg	gccgagaatc	tacatcccga	ggcattgctg	tcaatgtcat	1740
cgagatggct	ccacaggtaa	tggcccgggtg	gatttctcga	tggcaacgat	cgttcatgcc	1800
cacctgcaag	aaaagggtatt	ggtctctatc	tgggcaaagc	ggtgaaaagt	attgaaaaac	1860
gggagaagta	ttgactgctt	cgcttgactc	gggcgaaaaa	atcgaggccg	actcatcctt	1920
ctgtctatcg	gagtgcgtcc	gaatacgaag	ctggcagctg	tgacagttg	gctatcggac	1980
cggcacgcgg	aatccgagtg	aatgaatact	gcagacatcc	gatccggaca	tctatgccat	2040
cggagacgcc	atcgaatacc	acaccctctt	accggaaaagc	cgtggaccac	tttcttggca	2100
gggccggcaa	tcggcaaggg	cgcatacgtg	cggataatat	gcatggacaa	acattgggag	2160
ttatgaagga	gccataggaa	cagctatttg	caagattttc	gatctacggt	tgacagctaca	2220
ggtttgccgg	caaaggctct	caagcgcgaa	ggcctcccta	tgagtcagtg	acggtacagc	2280
ccaacagcca	cgcgcgctat	tatccaatgc	ctacccgctt	acgcttaaaa	tcaccttcca	2340
cccagagagc	ggatgctcta	cgggtgctcag	tgtgtaggca	tagaaggcgt	ggacaagcga	2400
aagactccat	cgctcaaata	atcaagcgca				2430

(2) INFORMATION FOR SEQ ID NO:1386

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 467 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...467

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1386

tcggagagag	acgttttttc	ttcgaaaaga	taactgccat	cccccaaac	ttaaagggga	60
gttcttcctc	atcgtaactc	tccgtaatct	cgccgacgtc	tcttcccaat	atgtcctcca	120
ttgtgatcag	tccgcaagtg	ccaccgactc	atccacaacg	atggagacat	gcaccttatt	180
ggctctgaac	tcctcggcaa	atcatctatg	cgcttgtttt	cggggacaaa	atatgcttta	240
cgaatagagg	atgccagtcg	aattcatcgc	ctttatccat	gtgtgggatt	agattttgat	300
gtaaatacacc	cctttgatat	tgtctttctga	cccctctgaa	acggaagtct	ggaataaccc	360
gacgaaacaa	cgaagtcaag	catcttacga	aaggccagct	cagatccaca	tccacaatat	420
cgatacgcgg	gaacctatga	ttcgcaggct	ggcttattat	aggaatt		467

(2) INFORMATION FOR SEQ ID NO:1387

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 687 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...687

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1387

tctgtcaagc	tccttccttg	atcaactatc	tgcgaaagtc	gcataattat	ttctcgaatt	60
tcgtctgccc	tttgctccgg	tcaaagacct	tttggccgac	tgtccaactg	tccatccgaa	120
gtggtattcg	tcattcgtca	attctatatg	agtatgtgga	ggaagtacgc	aagcacatga	180
gctacgaaga	gaaaacgttt	tcctttatgt	ggaaaaactt	ttgggcggaa	agttggacaa	240
acgttgcaact	acagaatcga	tatattcagc	aaacgccacg	atcagataga	gctgagattt	300
ccgaacttaa	gaacctgctg	atcaaatact	acccgacatc	gagggtctacg	aactcaacag	360
cgttctgcac	gacatattct	cctcgggaaga	cgtttgtcag	cacacaactt	tgtcgaagac	420
catcttttcg	tgcctttgat	tgtaaaatag	aaaaggaaaa	cggattatga	atatcatcac	480
actcaaggta	cgatagtggg	accgctacct	atgattcgtg	cagggtctgga	agctctacta	540
agaaaatcac	cggctacaag	atacaattca	tagatgcacc	cgccgatatg	gttgggtaga	600
tgtaatctcc	ttttattgtc	ccgatgtcgt	tttcatgata	cactcgtatc	gggactcacc	660
cgaaacgaat	ccgacaaggc	atgtccc				687

(2) INFORMATION FOR SEQ ID NO:1388

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 552 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...552

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1388

caggacctgc	caaaagaaaa	gtttgccggc	aaattatgct	cggcaccatc	tctcggaaag	60
aagaataggt	agtagcaagc	ctatagtggg	tggaggagacg	tatatactga	tggaaagagg	120
tcgcctattg	ctaccgattt	ctgatattat	tccatttttc	ggttgtcttg	ataggaaagc	180

aaatgtccct	tttgtgaccg	gtcgaaagta	aaagatccga	tgccacaatg	gaagcaccat	240
cagcttgaat	agctgtgcga	ggaaaagcga	ttcgaaggca	cgataggaga	gttcataccg	300
gtgagttcgc	taagctgcga	ataagaggct	gttacgtagc	gttgттаатg	gcatcagtta	360
ctgtcatacc	ttcgggtgta	atccatgcac	gcctgccact	acgagaggaa	aaggcatggc	420
aacgaggcgg	ataccacgat	tcgaacgagg	gtcaattcga	tacgtgtatt	cacctccttt	480
tgatcgaatc	gagaatagct	ttgcccgttg	cactgaatct	gtcctgtcga	gggtagtgcc	540
cttgatattg	gc					552

(2) INFORMATION FOR SEQ ID NO:1389

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 374 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...374

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1389

ctcaaagggtg	agggggagaat	taccgagatc	aatgtagccg	aaactctcaa	gatgtacgtc	60
gtgccctttt	ggatgccgac	gtgaactatg	tcgttgccag	cagtttacgg	acttggtgaa	120
ggaaaaagcc	atcggccaaa	acgtgctacc	tccgtccgtc	cgggcgaact	gatgggtgaag	180
atcgttcatg	acgaatggct	gctctgatgg	gcggacattc	tgtggatatt	aatctcaaag	240
gcagtcggca	gtaatcctga	tgtccggatt	gcaaggttcg	ggtaagacca	cctttccggc	300
aaactggcca	atatgtctaa	gtccaagcag	ggcaaacgac	ctcgctcgtt	gcctgcgacg	360
tgatcgccc	tgcg					374

(2) INFORMATION FOR SEQ ID NO:1390

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1165 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1165

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1390

ccaaattctg	aatgtgtact	cggaaggcgg	gaacacacta	cntccaatcg	gaactgcaaa	60
tccgtactca	atagccgtgg	ctatgggctc	tttctggaga	cctgaatgga	atgcgcactt	120
atgcgggaga	taggatgtgg	gctttgtcgg	caaacgggaa	atgccctatg	atttagatcg	180
tgatactaca	caaatccttc	actggaggag	atgactcgct	tggctataga	gaagctgaat	240
cgttcgagga	aggctttttc	cttatggtcg	agggtagtaa	agtggattgg	gctgacatgc	300
caacgatcct	gtggggattg	ctaccgaata	tcttgctttc	gatgtgcttg	tgccgtggca	360
ttcgactttg	cccgtcgtga	cggacaaacg	gcgtcatcat	cgtgccggat	catggcaata	420
gcggtgtaag	cataggcaaa	caagtgtgaa	agactatgat	aagcgttctg	caaaagacct	480
tttcgatcaa	tctgtcgctt	cgcctgaca	gcagacggac	ttgcagggcg	tttggctgaa	540
ctcccgccga	caagggtccag	ggtttggtaa	gcaatatctg	cggattcgat	tggacgccaa	600
agagttggaa	gctctttata	attgtccgga	ttataatata	gtcctatccc	caaagagcag	660
cgcaggcaga	cgaagaatc	cctctaagcg	gttcgctcag	taccttcac	gcatcgcttt	720
atacgaagca	cacttgatcg	gttttacgac	gcacggacat	actgccgaag	aagtattgnt	780
ggcgcctatc	accccaaaag	atacacgccc	gatgggaatg	gtcataaact	atgactgaat	840
gactatctct	gccgtctctt	cgaattagga	agccaattgc	cctccttacc	gacaagatat	900
ttgctcccca	tacggaagta	ttccaaggca	tagctacagt	atcaaagacg	gaaagaagga	960
aggagaactg	cctgttcttg	agtgaaaaaa	ggtagccatc	gcttactggc	gagtcctttc	1020
tccaatacgg	tatcttcaat	aagaaaagcga	ttgatctgtc	ttccgtagta	gtctatgtga	1080
taagactaag	actttctatt	tgccctgtga	actgcgttct	tattcgggaa	taagccgctt	1140
gatgtgtgaa	gaaaacccat	caaa				1165

(2) INFORMATION FOR SEQ ID NO:1391

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 624 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...624

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1391

gtatagcctt	gacggacgaa	tacgacacga	ccgaatgagt	cggcgatgag	acgatcggca	60
gattggtcgc	atcaggcagg	ttcgcagcct	cccgtatctg	gcggcattgc	ggccttgaat	120
atccagtcgg	aatacggctg	tctcgggagg	gaggggaagt	ctgccggttt	gtaacgcttg	180
tgtccgtcgg	catcgggaag	aggaggatca	gcttgcgccc	ccactgctcg	aagtcggctt	240
tcacctctcc	aaatctttca	gagcatgggt	ggtaggctcc	tgaccggctc	cgagatggcc	300
atcgcgaaat	agccgcgtcc	tgtggtagag	aggagcgagc	ggtttctgca	tgggagagat	360
cgtggtagag	ctgttcggca	ttgatggagc	cgtaacctga	atgtcggtcg	aatcgtgtag	420
cagtttcgagc	ggttggcgag	cgtcttaccg	gcttctaccg	tgaacttcct	catccggcac	480
aatacgctgc	actggccata	cgcgtaccgg	taacgaggaa	ataatgacct	gcattcattc	540
cttggggcgg	tcgaagagcg	tcttcaggtc	agtcgggtca	ttttcatcta	atagagcgtg	600
cggatgatgc	ccgaggtgta	gctc				624

(2) INFORMATION FOR SEQ ID NO:1392

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 921 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...921
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1392

ctttgagatg	agatagtatc	aggattcaaa	gccattccat	tccatgagaa	gagcttacta	60
cgttgctgcc	gccatgagct	gtcagccagt	ccaattgtcg	gaagacagac	agagccaacc	120
ctgaccatcg	ccatcggcac	cgatagtgtc	cattccgctg	gtgcctctcc	atgagtagaa	180
gactcgaacg	tttccggaag	tctgcgcgct	tgccattggc	cttgatctca	acctcatcaa	240
ggtcgtgtag	aacatatccg	tgctttggaa	gtgacggaaa	gcaacatatt	tcgtcctgcg	300
ggaaggctta	ccgtcttctg	gcgccaagta	ccctgtatac	gacacgaata	gctttcggcg	360
agcgaacacc	ttttgccgta	atcgtctctt	ccacaaagca	ttcgtgaagt	tggatgcatc	420
gttaccggtc	gaagatgcat	aaccgcatag	tgctcggatg	cataattagc	atcctgtgcg	480
catacccaga	agtcaactta	cctccgttag	gcaaattcaa	tgccgggtgt	atcagatagt	540
gtcaggggta	agaactccta	taccaccaag	accgaatgac	tctgaataac	acaaccattg	600
ctattgtagc	cagcgattcc	gggagcattt	ccaggctcca	gccatgcccg	tcaccgtctg	660
catcgatcgt	cttccatgag	gcaggatacc	attttcgaat	gattcggaaa	gtgtagttgt	720
tccgggattc	ggattggatt	cggatttgga	tttggtatcg	gggtaccatt	aggtgcatcc	780
cactaagcgt	tactttctgg	ccgactgcac	taccggtcag	gttctgtaca	ggacaaattc	840
attggatcct	tctaccgtaa	cgtctttaca	taccttcgga	gaacgccggc	tgtgtactta	900
acttccacgc	aatactcatg	a				921

(2) INFORMATION FOR SEQ ID NO:1393

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 804 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...804
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1393

gggaacaaaa	cttagatagt	gaggattggc	aggacactta	tttcgagggt	ggaagaaact	60
caaaaagctt	agaacacgca	aggacagtta	tcgtgactca	ccttcgatat	tgtgatggct	120
aaccaccctt	ttgcgggaga	ggtcaagaga	gtcgtatact	tgccaagtac	gatatgagcc	180
gtagtatgtc	tctcgaaaagg	tgaaaatagc	ccctaaggga	gcaaccatcg	tggagggcga	240
gccgactttt	ctgaagctct	cgctaataca	ggagaaacca	tctatcagat	gagtatggta	300
catatcgaaa	gaccaagctc	aagcaagctg	ggaatatgag	ccggacatcc	tctttgtaga	360
gcgtaatctt	gatttttctca	agccggggcg	tctatggcta	tcgtattacc	tcaagggcgt	420
tttaacaaca	gcagcgacaa	actttgcgcg	aatacattgc	cgatcgctgt	cgcatccttg	480
cagtggtagg	ttgcatggca	atgtatttaa	gcctcataca	ggtactaaga	cgagcggtacc	540
tttgtgcaaa	agtgggacga	ggagctatgc	ccacgagtag	aggattacac	atcttctttg	600
ctaccatgca	agagccaagc	aaggacaata	gtggcgaaaag	atztatcgca	gcaccactaa	660
cgaggagggc	gagaatgttc	ctttgctgac	acccacgggc	atcttatcgt	taagcacgat	720
cttttcaacc	acgatgactg	accgaagatg	gcatagctna	agcctttgca	gagttcgcta	780
agaagagaga	ctctcttttt	cgcg				804

(2) INFORMATION FOR SEQ ID NO:1394

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 629 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...629

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1394

gccgatgata	gcgtcatcca	cacgcaagac	gatgggtgga	agagcaaagc	atccgtcaca	60
cggatgagcg	aatgttgcca	cacagcatca	atgtccatgg	tggctgaaag	ggtgcattgg	120
ggtgggttcat	cttcgtcctc	ctactttcgc	ccagcgagtt	cgagggcaag	gtcagcgta	180
atgataatct	tacgacgatt	tgcgtgaagg	cttcgggtcta	tctttccact	ttgcttgata	240
cggttgcggt	agggagactg	catccgaaga	gtcgggcgag	tcctgatagt	ccgtaacgaa	300
gtgtctttct	tctttggcgg	gggccttgtc	ttgtgtgtct	ccccttgttg	cgttgatccc	360
tgttgggcta	ggaatagtag	ttcttcaccc	gtatcttcca	tacgggcttt	tcgaggagtt	420
cgtgtagtgt	catagttgct	ttacattgcg	gtgtcaatcc	aattgaatga	ggctttatga	480
gccttcgaga	tcttcaagca	tcgtcttgaa	tagctctgac	actgcaaaat	gtataggcga	540
atgagcacgc	ccgaatagcc	tangaaaggg	aaggatgtat	tanggagagt	gggaaaacaa	600
gccgagccct	ttgggctcca	tcaagagct				629

(2) INFORMATION FOR SEQ ID NO:1395

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 567 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...567

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1395

gctccttacg	ctttaatttg	gtttgcaaaa	atagtaaata	tccttagtat	cggaaaaata	60
caatcgctcc	tctctcgatc	tttcctcgcg	ggatgagaga	aggtagagag	aagagcgact	120
gcagcgggaa	taatctctgt	cgggtgccgc	ggcctataat	cgagatcttg	tatccccggt	180
ccttatagtt	ctacttgaag	gtccggatat	taccgtccgg	ataaaaccca	cgcacgatga	240
tcaaggaccc	gatcggctct	gtccggcctc	acgaacgatg	tcgctgacat	cggccccgag	300
cttaccggtt	ggcggttgat	cgaaggatg	atgaatcctt	tctgatacct	gcataccttga	360
atttccccga	gcttacagag	gttacctcta	cacataagaa	acaccatagg	atcgcatattg	420
ttcggcactg	agggctctttg	atgatgctcc	caatacattt	cgggtcgatt	cgnccggtga	480
ttaccgaagt	cttccttcat	tgttctttga	gcgtgacngt	cagttccttg	gtcgccttct	540
acgattgatg	gtcagcttca	ctttgtc				567

(2) INFORMATION FOR SEQ ID NO:1396

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 915 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...915

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1396

aagaggccgt	attgggaaga	tgaaacgggtg	tttgcgaaac	caaagaagag	gccatgctac	60
ctttatgccc	tatgctacaa	cagcattgtg	caggctgaga	gcggtatcag	aaaccttggc	120
ttactccttc	gcaggcagaa	tttttattct	gaacggcttg	tggtatcttc	gctattttcc	180
cgatgcccgt	actgccgtac	cgattttgtc	gaagatctgt	tcgatgtgtc	tgcattgggat	240
accatacagt	accatcgctc	tggcagatga	aagggttggga	tacaccttta	tatacaatgt	300
aaaccacatc	tttgaggaca	atcctccatt	tattcgcatt	cagagactta	tacctcggca	360
gtggatccca	atccgacagg	ctcttatcgg	cggactttat	ccttccgaca	ggctgggaaa	420
agaaacgcgt	ttatctgcct	tcgatggctc	ctatagtggg	gcttatgtat	ggataaacgg	480
gcgttatatc	gctacactca	aggggggcaat	aacgatgccg	agttcgatat	cagtgcggcg	540
ttcgtgcggg	acagaacaat	gtgagcatac	aagtagtccg	ctggacgggtg	cttcttattt	600
ggaggggacag	gatatgttcc	atatgagcgg	attgcatgcg	atgtctatct	gtacgccacg	660
cctcgtactt	ccattcggga	tcattaataa	cgagcaagtt	gcatcccgaa	tccgactata	720
ccacagggga	aatatcgtag	ccgtcgagat	ggacaacaga	gacggttcgg	ctgcacgtaa	780
gacttcggaa	tacgtctctt	ggatcccca	gggaaagtgc	tctgggagga	acgaagcaaa	840

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1029

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:943

catacttctc	tcgactatca	tctaatttct	gatatacata	tggcttattc	tttaaaaatc	60
tcgtctttga	aggggggtgt	gtaaaggcat	tgccatacag	gggccctcga	agtgtctcag	120
gaagaaaaga	ttttcccaa	aatcaaagag	tagccggcac	atcgcccggt	gccatcatgg	180
ctgtgtcat	cggactgggt	atacaccgag	tgagatcaaa	gagataatgt	gggtgcctcaa	240
tttcagaatt	tcattggacga	ttcgtgggggt	atcattcaag	atacgaaacg	gctgtcgaga	300
agttcggttg	gtacaaaggc	gatttcttcc	gcaattggct	tgggacctga	tcaaggccaa	360
gaccggcaac	agcgaatcga	cctttgcgga	ttggctgcaa	tgaaaggaga	aaacaaatct	420
ctcgacattt	ctctcatcgg	cccaatcttt	ctacaggctt	ctcagagatc	ttttcggcag	480
aacatacacc	cgcactctga	tagccgatgc	tgctcgtatc	tctatgtcca	ttccgctgtt	540
ttcgctgcta	agcgcaactt	ccgaaacgat	gtatatgtgg	acggcggttg	ctgaacaact	600
atcccgtcaa	gggtgtttgat	cgtaccaagt	atgtaacaag	aactttacac	gaacgggcta	660
ctatgaacct	atcaataaga	agctgggaaa	cgccccagga	agattgccga	ttacgtatac	720
aacaaagaaa	cattggcttc	cgactcgaca	gcaaagagaa	gatagccttc	ttcagggaca	780
acgcgaacct	cctcatcgag	atatcgacag	cttctttgac	tataccgtgt	cgcattcggc	840
actctgctct	ctgctcaaga	cgatgtacac	ctgcacagt	atactggcaa	cgcaccattt	900
acatcgatac	gctggggagta	aagactacgg	atcttgccatc	agcgatgccc	aaaaaaaaagc	960
tttgctggaa	tccggccgct	atacactcag	tcatatttgg	agtggtagaa	taacagcgaa	1020
gaaaaagtc						1029

(2) INFORMATION FOR SEQ ID NO:944

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 497 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:944

ccgccggcaa	tgctttcttc	ccgtctttga	tttctcccgg	tacgggtata	gcgatgtcac	60
tcagtcgcaa	ggagtacagc	cttacttctc	tatcgccaac	cgccgatgat	gagcgtgatg	120
acagctcttg	tcctctcttt	cgtactcgcc	tgggtttggc	cggcatggaa	agccgtggca	180

tgaaggggaat gatgcagatt ttcaggagat tatcaccaag ttgatcgcca aggttattat	240
cccatgctgc ccatctatat cttcgggatc tttctgaata tgacccatca gggcaagtgg	300
tgaagggtgtt gtccgtcttc cttagtatca tcggtatcat tttggccttc atatcatcct	360
gctgatcttc caatactctg tggcaggatt caagccaaga agaatccttt cagaatgctg	420
tggcgaaatgc tgccggctta ttcaccgctc tcggtacgca gtcttcggca gccactattc	480
ccgtcacgct aagagt	497

(2) INFORMATION FOR SEQ ID NO:945

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 953 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...953

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:945

ctgaccaatt atattcgccc tacggacttt cgctcgatga ctatttcata accgCgagga	60
ttcgccacgc gatgaatccg gagactatga tttcgaatgc tctacgcttt ggatctgccc	120
cttttcaata aggatctgaa gcagatgtcg ccggtgaaga agtgagcctg cccacctatg	180
acttcgcaac cgggataggg tctacaaagg aaataccata cagctgaaag acggagatat	240
cctgacctcg aaggcattca tgcgctgaat ccggagctga taccgggtgt gcccaatcaa	300
gtacgtataa gatctatgtg agcgctctca ctgcaatagg attgatgctc acaatcggat	360
ccccagtagc gacaaccgac tgatcaggcg atggtgcgcg actatcgcta tcgcaattac	420
tccggtctgg ggacattgcg tgttggcaga gtgtccgacg aggagaggaa aaatgggtat	480
tcccgttcca gagaatgcac acgtcatgtt caatagtgcc atgctctacg agttggctgt	540
ttgcgtgctt acgcggagcc gatcttacag gcaatccctc gtaacgaacg gaatatgctg	600
aagcccgtag actgctacgc tttttgagca gtttccgatg ataccggcac gtttgcttcc	660
gaacaactct ctgatgcgtg agttcccggg ggaagcacat tccactactg atgccgaatc	720
agtccgtaat agcagaacaa accgagactt gggtaacatt tgaagacgcc ggctgagtca	780
tatccggcat attttcagca aaggaaacga cgtaatcggg ctatataacc gactcaattc	840
tcaagaatac gaactnagag cgaaagcctt tttggttcgt aatttgtttg gacccctga	900
tcgagtgttc cgaatcggac tcgtcgggaa gagctttttt tgctactttt tgc	953

(2) INFORMATION FOR SEQ ID NO:946

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2471 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2471

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:946

ggccatcgag	agcggttttct	cattggcgagg	agcacgagtg	gaattcgacc	ctcgtacaac	60
ggctggcaac	ctaatatcca	gtcgcacatt	ctcgaagtat	gagcaaagtc	ttcgaagagt	120
attacggcca	aaagcccga	gtacagggat	gcatgccggt	ctggaatgcg	gtatcatcca	180
aggcgtaatg	ccggattgga	catgatctcg	gtaggtcccc	aactccaatc	gccacactct	240
ccggagaaa	gattcatatc	gaatccgtag	ctcgcacatg	ggaagtactg	gtaaagtact	300
ggagcgagtg	taaggagtag	aagtcgagtt	cggaggatat	tgcattcggtt	ttagagatag	360
gtcttacgaa	ttaaagaggt	gaaacagaac	aacggaatca	taatcaaaac	aataacgaaa	420
cagagatgaa	agcattttgta	tccccgggtca	gggagcacag	ttcgtaggaa	tgggaaaaga	480
cctgtacgaa	agaacccccga	ggccaaagca	tattttgaaa	aagccaatga	gatattaggt	540
ttcgcattac	ggacatcctc	ttcaacggca	cggcagagga	gctgaaacaa	ccaaagtac	600
ccagccggcg	atcttctctc	actcgggtgat	tctggccaga	cgatgggcga	agacttccgt	660
cccgatattg	tggcaggcca	ttcgcctggag	agttttcggc	attggttgca	gcagggtgcca	720
tgacatttca	agatgtcttc	gtctcgatc	gaaacgtgcc	atggccatgc	agaaagcatg	780
cgaatacgcc	cctcgactat	ggcggctgta	ctgggtctgc	ctgatgaaaa	ggtgaagaaa	840
tctgtgcca	agtgaaccgat	gaagttgtcg	taccggccaa	ctcaactgcc	cgggacagat	900
cgttatatcc	ggttcggtag	aaggagtggga	cagacttgcg	aactgctcaa	ggaagccgga	960
gccaagcgtg	ctcttaagct	gctgtcggtg	gagcattcca	ttcccctctg	atggaaccgg	1020
ctcgtgaagg	ctggcaaaaag	ccatcgagga	gactacgatc	agtcagccga	tctgcccctc	1080
tatcagaacg	taacggcttc	tgcgcgtcacc	gatccggcag	agattaaaag	aacctgatag	1140
cacagctgac	ggcaccgggt	cgctggacac	agagtggctg	aatatgacag	ccgatgggtgc	1200
cgaccacttt	atggagtttag	gccccgaaat	gtattgcagg	gtttggtgaa	gaaattgtct	1260
cctgaagcga	caacgaagga	cgtcagtaat	caggtcttaa	gacctctaa	gagaaacggt	1320
gtacgagatc	gccccaaacag	cgactccggc	acaccgcttt	ttttattgct	cgaggcttat	1380
acgactacct	ttttctccgg	aggcttcttg	tcatacgtct	tgagaagata	gacgggttcgg	1440
gtctatttcg	aagaggaagg	cggaggatta	ttcctcctgc	gggactttcg	cttggcactg	1500
tacttgctct	ttttcttggg	ccggaagccg	aacttttagt	gatttgacgc	ctctgaccgg	1560
gcttgacgag	gaggacttca	agccgtttgc	cctcttaatg	gctgctaccg	tagtgccctaa	1620
cgtttgccga	tggacaagag	cgctccacct	tgcttgacat	tatggagatg	gcgggttcgtc	1680
ccgatcctcc	cgagtgttgt	ccgccttgct	cagggaatcc	gataccgaag	cctccaagtc	1740
gggggaataa	agcgaatcgc	gaacttgctc	aatttcttga	tggaaagcgc	gggaaggcgt	1800
agtcggcaca	gctggtatta	ccggggatga	tccccctttt	gtattgaggg	ttgagcagtt	1860
gcattcgtcg	ttgctcacac	cggacaatag	acgaatgcga	tcgaaagata	ctgtcgggac	1920
agcataatcg	tatccgtagc	caaaggaacg	ccggctctctc	ggcacagatc	tcattgttcga	1980
tatggtagtg	catggcatag	tacgcaccgt	gaagagcggg	atgtagtctc	gcgttttcgcg	2040
aggaaggtag	ggatagattc	ccagaagtcg	gtcttgccac	cggacattcg	gatggctttg	2100
ttcacatgcc	gagtcgcgag	ttataagccg	cgatgcagag	gagccagtcg	cgatagggtc	2160
gtacatgtcc	ttgaagtagc	ggcaggcgag	ctctgtactt	ttctgagatc	cagccgttcg	2220
tcgacgaggc	tgtttatagt	gagtcctgat	atctgcccgt	agccagcatg	aactgccaga	2280
taccggctgc	tccggccggc	gatctgccgt	aggggttgaga	gccgactcca	cgatgggtcag	2340
gtacttcagc	tcatcgggag	gttatgacgg	tcgagtgtct	cttcgatctg	agggaaatac	2400
agtcggcgag	cgagagcata	tagcggacaa	ggcgacgacg	ttcctcgggtg	agagcttgat	2460
gcactgcttg	a					2471

(2) INFORMATION FOR SEQ ID NO:947

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 333 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...333

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:947

actgcccgga gccatgatcg cccttcgaaa gtgaagggcg gttgcgaagc ggtaagaagc	60
tgatgaacaa cctgcacctc tgctccctcg ccgtgagctg ggcgatacgg aaaccctcat	120
ccagcatccg gccagcatga cccactcccc tacacaccgg aagagcgtgc tgccagcgac	180
atatccgaag gactggacgc ctgtccgtgg gtctggagaa cgtggaggac atcatcgccg	240
acctcagcac ggtctggaca gctgatctaa acacccaagc tgataaggct gacaaagaca	300
tatgaacccc gaaagtcgcg acgacttcgg gtc	333

(2) INFORMATION FOR SEQ ID NO:948

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1444 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1444

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:948

agatgtcttc caacgattat ctgacggact atgtgatgac gatgctggtc gtctctccgg	60
ctcttaccgc tgcaccggag cataaggagt ttcagccgtg aagcgtatgg ggtggaatgc	120
tctcgatgat gctgcctcac gactgatgat agaatgaagg aatacgaaaa gaaanccaag	180
agtaagtaca aaatacgccg gaacgagcac tcaactatct ctatctgctt acgatcgaca	240
gtcgcaccca agctctcgtg gccatgctgc ccgcatgtat ttcctcgata ttctggccga	300
tcccttccgc atatttccat tttggatatg ccgagagctg ccacgtactc cacggtgtag	360
ggcgtaaaggc actggccgat gatttccctc gtctatccgt gagcatatca tccgcacacc	420
ggatcagggt gcgcactttg cctgccttca ggcggatatt attggtgcga ccgtcgctat	480
ggtatgcaga ggaagcgatc gaggccttcg ctcgatcgg tacgtctcag gacagctcta	540
tatcgaaggc ttgcagatgt ggctcctcaa tcagaaaaga actcagcttg gccgagctctg	600
ccggettctt ccgatgcgat atatgctctc ttgttagtgc aggaaaagat cgaatggtag	660
aagccactgt gtctgtccgg gctccttacc tgccttgta ggtacatttg ccggtgcagg	720
cgaagtcgg atcgtaggtt ggaagatctt ccgcaaggca aactaagtgc agagcttgct	780
cgttcggaaa aggatttgct tgggcttcct tcttggcgga atacgatgcg ccgcgcgga	840
tctcgtagct acgggtaatg gcttgtcggg agagaagcat ctttctccga gcaggtgata	900
gatggcaagc taacgctcgt acctctccga ggggcgatcg gctggaagtc ggtaaacggc	960

tcgtgacgca	actgaccatt	cgctcgatcg	cgatatggac	ttcattgtcc	tgacggacaa	1020
gcgaacggcg	cggtggaacc	tatcggccaa	ctttcgggtt	atgattatgc	agccggaagt	1080
tctactacag	agaaataaag	gatagcagta	cgcgtttcta	tttcgatgtc	tggttaagagg	1140
atcctacaag	ctccaatact	ccaccgttgt	ggttcgtcgg	gagcttatgc	ctcaggtatc	1200
gctaccgtga	gcagtgccta	tgacaggagt	ttaccgggtca	taccgatggc	ggcagacagc	1260
tgcaaacagt	tccgtcgcaa	atactcaata	aactaaagaa	gcaaataaac	caacaaccaa	1320
tcaaatcgcc	gtattcggac	tcgggtggagt	agggtggctac	tacggagcca	tgttgctctc	1380
cgcgcagctg	cgacggatgg	cctcctcgaa	gtttcttggg	tgcgcgcgga	gcacatttgg	1440
aagc						1444

(2) INFORMATION FOR SEQ ID NO:949

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1068 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1068

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:949

gtttctggggac	ggaatggccg	atatggatgg	acatggagtg	tttacgaagt	gcttgacgat	60
cgcaatcgcg	ccggcaactt	tgtgctgaac	atgggtttca	tcaggatgca	tcaggccttt	120
tggcgtttta	cgacaaggct	ctttacgacg	cttcgctatt	ccggcgggca	tgactgtcgc	180
tgccgagctg	aagatcgacg	aggagtgtac	agcggtaag	taaagctgac	agagcgttcc	240
ggcagggtccg	tatcgatggc	gactatctga	tgggtacgga	taagtatcgg	ctcgtatgca	300
ggtggacggg	ctgaatttca	gtgccttcat	gccgaaggat	agttcgggtc	catgcaggca	360
gtgcttcatg	ccgaaggggc	tggattcgat	ctttcaataa	acgtactgtc	tccaccatac	420
acacatcggt	caaacacatc	cttggaagaa	acgagatttg	gacagtatca	ctttcgatgc	480
ggcattgaac	aaggagtgtc	cttcgcttca	ttcaatagca	ccaactcctt	cctgaacgga	540
gtatgcaatt	ggatgccctc	cttggcaaaa	acaaactgga	cggctctgga	tggtgcggat	600
ggattcggcg	gatttcaatg	cattgggctt	tgcagaccca	cttttgcggc	agcttttgtc	660
cttgagggtc	atgtgaaaag	cgatttgctc	agacacatcg	gttcgaagcc	tcggtacgcg	720
attgttacat	gcagccgaac	gctataaagt	aataccggag	cgaatagata	tattagccga	780
taccatcccg	atagcatccg	tctggatctc	gtgtcgggcg	acttgaaaat	ggcctcagag	840
tgggagaagg	catagatgcc	gttacggtcg	tgtcccaatc	tccgggaaga	agatagagat	900
attccgcaac	gactctattc	agcgtctgcg	atctcttcga	tttttcaaga	gctgcctcat	960
gcgaccttta	ccttgcaagc	cgatcgctac	aatccgctcc	acgacttgat	gggaagtaaa	1020
cggtatgaat	acaactccat	ccgtggcaag	ctggacagtt	tcgcccga		1068

(2) INFORMATION FOR SEQ ID NO:950

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 594 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...594

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:950

actctagagg atccccgatt ccatttcctt caacaaccag aacatatgtc ccggagcctg	60
agaatacaca tccatactga agacactcgt ccctgctata attccttggt cattgcagcg	120
acttcttctc ctgcggtggt ataaagctta tccgatatgt gccggcaata ttcaaactta	180
ccgaaacagc cagttcgaac gaccggcgtt gaaccatgca cgaagagctt tggcagctcc	240
gggtcaagtac atgtattggt ttcgttcata cacgtaaact tgaaaggatc aggtcgccga	300
taaagggata agtctctttg cgaaccacta ttgtcagcgg caggatatag tattctacct	360
tatcattctt gttaagacct gtaaagctat aatatagtga cctgttgatt ccatcgtcac	420
atcagcagcc ttaaagctac cgaaccattg atacgatagt aacattgtac cggcgagata	480
gtagcattgg gcatgagacg acatctgctt cgatcttata atcagggcct gcctgttcgc	540
cagtatcggg tagtgcttga tatagagata gcccttatcc gctacctctg agta	594

(2) INFORMATION FOR SEQ ID NO:951

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 526 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...526

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:951

cgggacagga ctctatctcc tttcggaaga ttgcagtaag atcctcgcga atttaccgta	60
gaaaacagcc ctttgctttc taacaacata ctatccctgc cttaaataac gataacggac	120
tgctgtacat cggtacggcg gacggacgat gacgttccaa acgggtacgg ggagtggatc	180
agcttccgaa ctggacgcgt ctatgtatac cccaatccgc taaggccgga atatcccgat	240
ggcgtacat tgccggactg caagccggct gtagtgtcaa aatcaccgat accacggcag	300
actgctatac cagactgaga gcgtaaccac cgaagtcaaa tggatgctcg aggtgccgat	360
ggcaataggg tagcttcggg cgtatatgcc gtgcagtgtg cgatccggta tcgaaaaagt	420
ccaaactaat tcgcttcgca ggattcgctt gacacacggc cttttctctc gtaaacaaca	480
ttttaatcca actaatagggt aatgaacaaa aagatttttg gtgcat	526

(2) INFORMATION FOR SEQ ID NO:952

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1274 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1274
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:952

ttgaagatta	tccgggttatt	gtaatgagca	catctcaaca	ccacgagctt	aaatcggggtc	60
aatatgccc	tccaaaacga	aagaactctc	gccttggtta	tccacatccc	aagaacttcc	120
ttatagccct	gtcggttaagt	cctacgctag	ataaacggtt	ttcttgatta	tcttgccctga	180
ttctcttact	ttgaattaga	caacatata	acgcctgtca	agaggagaat	tttgccattc	240
aaggagagatt	ggattacttt	attagtaata	atggatatgg	cactcgtaga	aagggtattt	300
cgtatatatc	acaaaactta	tcttctatat	ctgatatatc	tgaacgtca	tttgtttgac	360
atagagttag	attacatgct	tttcaatata	aatttccaac	tggtcatctt	cgccatgtac	420
aggatgctat	cctcctcgga	tactacggga	gtcccggtgc	catatcgggt	tttcagaggc	480
tatacctcat	gccttttaggc	tcctcgactt	aggcaatccc	catttagctt	gcataatctt	540
tagtgcgaca	aactgtcgga	tgcgacgttc	gaccttttgt	tcaatccgca	gactacaccg	600
gaaagtacta	cggagtggcg	tttgtaattg	cctcccgcac	ggctcattta	acagcctctg	660
gactatcggt	caaccaattc	aggcttatcc	ttgtgcttgt	ctttctacct	cgtcattcag	720
tcgccacttg	gcaatagtgg	acttatgcct	ttactgacat	gctacactcc	cattggggtt	780
ccccttggt	aagtgggtga	tagtaggtta	cttcaaagaa	cacgaacct	atcatagcta	840
aggagatatt	tattgtgctg	ccttatgggt	gctctttcca	aaatgatttc	agggtttattg	900
tcgtaaaaa	agtatgccac	tatagctgag	acggattcat	gatgaagtta	ttgattgatc	960
gatgtcttga	gtgtacaagt	tgccggtgtt	tttcagcata	tcattgatgc	attctatgat	1020
gtatcttttt	caacatgatt	ctgtcacacg	agggcataag	tttgttcttc	atatttgctt	1080
gattccgggt	acaagatgga	tgccgtcatc	aaagaggctt	tcaaagattt	aggcgagaat	1140
atcccttata	tgcaaagagt	tttccgtata	gttcttagcc	ggaacctgcc	aaaccttcgg	1200
gtttctgnca	tccacgttag	caccttaaga	caaacgtaa	taaactcttt	acgatcattg	1260
catacgaaat	caag					1274

(2) INFORMATION FOR SEQ ID NO:953

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1057 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1057

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:953

cgtcctactc	aaagctactt	atctgcttgc	cgccggcaac	ctctaccgct	gacctataaa	60
atatatcccg	atgggtgtgt	gaaatgtgaa	aggtgcaatc	tcttcgacag	atatggagac	120
cgacgaatac	gaatgggtccg	aagctgccga	accgctacat	tctcccccg	cagagaagct	180
ctgcgcgaagg	aagctttatc	ctcgaagtgc	ctcgtatagg	tgtacgcttc	cgcttcctg	240
cggagtgaat	gaggtacgat	acttcggaag	agggccggat	gagaactata	tcgacgcaac	300
tacggggcga	ctgtcggctc	gtacaccact	gctgccgata	agagtactac	aactatgtgc	360
gtccgcgaaga	gaacgggcat	cgtaccgata	cgggttggtg	atgctgcacg	gacgaggctt	420
gggcttgggc	atagtagccg	agaaacgatc	ggcttcaatg	ctcttcgaca	agctgtcgag	480
gacttcgact	agaagaagcc	aagcacagac	cctaccagtg	gaacaactat	tcacagacca	540
gatacaaaac	cgagatgaga	gcaaagctcg	caacgtcctc	cgtcggcaca	tcattgtcaat	600
gatgtgcctg	tgcgcgactt	cgtagagggtg	tgcgtgggtat	gaaacaacaa	ggagtaggag	660
gatacgatag	ctggtcggct	cttcccaacc	ttggcaccgc	ctaccgtcca	atcgggaata	720
cagttggggc	tttaccttct	tccgggtacga	tcagtcggcc	aatggccac	tgccacccga	780
tacgactact	aagcacaggg	cgatagatgt	ggcaaacacc	atgaggtgcc	aacacactca	840
tatatcttat	acggataaaa	tacagcataa	cgcatgaagc	aatgaatgaa	atagtagcac	900
atttccacac	cgagggaagc	gtggcagaga	tgcaccctta	ggtgccgggc	ttatcaatga	960
cacttacaag	gtggcaacag	cgaagccgat	gcacctgact	acgttttgca	acgaatcaat	1020
cacaccatat	caaagatgtg	gaaatgctac	aggcccaa			1057

(2) INFORMATION FOR SEQ ID NO:954

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 995 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...995

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:954

gagactgtcc	gccgaatcaa	acggatcagt	cgtgagatag	caaaagctcg	aaaatatcag	60
gcccttcaa	tatccagttc	cttgccaagg	gtaacgattt	aaggtgatcg	agtgcattt	120
gcgtgcttcg	cgcagcttcc	ccttcgtagc	aaggtgctca	agatcaactt	tatcgaattg	180
gccacacgta	tcattgccggc	ctgccggtag	agaagccgaa	caagagcgag	ttcgatctgg	240
actattcggg	atcaaggcct	cgcagttctc	cttcaccgc	ttgcaaaagg	ccgacctgtc	300
ttgggtgtgg	atatgaccag	taccggagag	gtaggctgta	tagggatgat	acggacgagg	360
ctgtactgaa	gagtagctt	tcggtaggct	atgcattcct	cagaagagtg	tactcttatc	420
taccggaggc	tataagcaaa	agtggatatg	cttgatgcta	cgacctgct	tcgagccaaa	480
gggtataaga	ctatgccacg	gagggaacgc	acaattttct	cagagagaac	ggaatcgaac	540
gaccaaagtg	ttctggccga	gcgagaacgg	acagcctcaa	gctctggatt	gcttcacaat	600
cgtgagatcg	agcttgtggt	caatatcaac	aagaatctac	cgcaggagaa	ctgaccaatg	660
gttataaact	ccgccgtgca	gccatcacct	gaatatcccg	ctggttacaa	atgctcgttt	720

ggctttctgcc	ttcatacggc	attctgcaaa	catagccctg	aggatattcg	catcaagagt	780
tgggtgaata	caagtagtgc	ctttttcttg	ttgagagtgt	cgattgtaaa	ttcagagagc	840
ctctgtaaat	ccggtcataa	ggccgactgc	acttgacagc	tttcttctct	ctctcctcac	900
ttccatggag	ggaaaaaaga	cggaggcagt	gntttagtat	ttggacactg	cctctgtctt	960
tttcgagcgg	attaccctcc	aaagatcaat	cccgt			995

(2) INFORMATION FOR SEQ ID NO:955

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1245 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1245

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:955

acgccggcta	cactgatagc	ctgctcgtcg	agtattttgt	aataagttct	gtttgggcat	60
tgagccggca	ttggcaatac	ccagctcgcc	ggctatagag	cgagttcagc	ttcagccttt	120
tcgttcaaat	cgacgatcgt	gtacttcgca	taataaatga	tgatgagctt	tttagaaata	180
tgataagtg	tgatagggga	tacggcatct	cggaatgaga	ctgtcaggat	actcgatacc	240
gcaggcgaaa	ggatagagaa	taggtgtcta	tttcgttttc	cgtcgtgcaa	atgtagaaat	300
aaatcgaatg	atggtcttac	tccctccgcc	ttattcgccg	aggcggctgc	gcctgcggat	360
gctacggccc	acggggggcg	tgcggagagt	cgtcgcaaag	agcgggacgc	cgccccctt	420
cgtctccata	aacgacacga	cagagtattt	attttactgt	ctgccgaatc	gaactatttg	480
ggtacctttg	cgcggtttgc	agaccgcccc	cgcaagtcgt	ggccgcccc	tcggtcagcg	540
cgtgcgggag	gagccgacgc	acctcacggg	aggaaggccg	agagcctccc	cgggaaacgc	600
cgggacgtgg	ccgtggccgt	ctgcaatata	ccctcgaaaa	acgtctagac	gttttgcccc	660
aaacgtctag	accttttgct	cgaaactcta	gacgttttat	tcggaacgtc	tagacgtttt	720
cctccgaacg	tccagcgttt	tttttcggag	gacttgaggg	atgtatcggg	tatgagtggg	780
catcaataac	aagaaactaa	taataagcaa	gttatgtccc	taaagtatgt	gataaaaagt	840
ctgtcgcgaa	gatcggcccc	aaagccggac	agaccatcta	tttgcccagc	cggcggcaca	900
agactctgta	accttcacaa	gcctctgcaa	ggaatagccg	aggagtcggc	tctgacctcc	960
gccgacgtca	aaggcatcct	gaccgcctcg	tcaatatacct	cagcgaggag	ctgccccaacg	1020
gcaagacggt	cgcacggcg	agctgggcag	cttcgcctc	tcgttcgggt	ccaaacaatg	1080
gacgacccca	agaatttctc	tgtagatcag	atccagaagc	acaggctgtc	ttcatccctt	1140
cggcagagct	caagagcatc	cccgcacgcg	gcaagcccgc	ccgggggtctt	cagccctggc	1200
cttcgactac	gacgtgtgga	gccgagccta	agaagaaacc	cggac		1245

(2) INFORMATION FOR SEQ ID NO:956

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 618 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...618

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:956

ggtctgtgtc	caaataaata	tcgttggcga	tataagggtc	atcggccgga	gctgctgttc	60
gatgacgggg	tggcggcccc	ctttgatgtc	gatggtaagc	tctcgtccac	tacagggcag	120
ataaatctgt	agcggcgtgc	cgactcgcaa	aggagaggag	acaatccaga	gaagccaccg	180
cttgactgtc	ctgttgagag	gtgccacgta	tcgctgcagt	tcggctacaa	gcaaggcgta	240
cagcttcctt	cgagggtcgc	tattttctct	tcggctccga	gtatttttgc	ttcgactctt	300
tcagctcttc	cgtaatatata	cgttcggcac	tgacgagtgt	ttgttgcgga	tccactcggc	360
cggtaccttg	tccttgtgcg	tgttgccggac	ttgatatagt	agccgaacac	attgttataa	420
gctactttga	gactgggtat	tccgttcgct	ctatctcctg	ctgctgtagc	ttgatcagat	480
agtctttgcc	ctgtatgcc	gtgcacgcag	ttcgtcgagc	gtggcatcga	cgccatgtgg	540
atgacggngc	cgcgaccgag	agcggccgga	gcacgcggga	tcacctcagc	aatatcttgt	600
cgcgtagttc	cttgcaca					618

(2) INFORMATION FOR SEQ ID NO:957

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 566 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:957

gaagtgccgg	gtacggagcc	gcgcgactgt	ggcaactgcc	tgctgcacac	ctgccgatgg	60
ccaaatatga	ggccgagaaa	tacctgcgtg	aggtactcat	gtagcgacgg	aggagaacct	120
gaactatccc	gactgacaac	tgccgggtgt	gcatggggct	tacagtccgc	tctatttctc	180
acgtctgcat	ctctaccctc	atgtcttctg	caatgacata	ggcaggacaa	tcgcatttca	240
gccacaacgt	acatctaaag	ctcatgattg	ctacattcaa	ttttcaaaac	aagtcgaatc	300
catatgtcag	agattcaa	catagaggaa	agagactaaa	aatttcaa	gcgatcgccc	360
tgacaggctg	cccccggggc	cgatgcatta	aatggttttg	cggcttcatt	cgagcaaatt	420
tctcctcatt	ggtattattg	gtgctattgt	gtgccgatgg	cagccggatg	gattattgga	480
gccggaggcg	tatcggtcgc	tatggacgca	atgtgaatca	gacggcacag	cgtggcgcaa	540
aggtgcatac	acggggagca	aggcga				566

(2) INFORMATION FOR SEQ ID NO:958

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 445 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...445

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:958

ggcaaagtcg	cacgtggcag	taatccaaat	gggcatatgc	ttataattga	tttgtgtata	60
tcgttgagcg	tcagcaaattg	ctcgtccgac	catccggcgg	accgccatga	ccagcataat	120
taagcaggat	aatacccgac	tgaagggttc	cagcatcttt	ttctttgcac	cgggaatgct	180
gtgcaacccg	ttctcgtgac	atgcggatat	acgtcctgaa	aggcgcgtac	cggcatgatg	240
gcagggcata	acgcttgacg	gtatcgatca	aacgggaagt	ctcggttgcg	tgctgtcccc	300
gttgtctgcc	gcaaaacagg	cacgaatacg	ccaggcacca	ctcctcgatc	ctcctcatat	360
cggatggctt	tgtccactgc	gatgcgagct	tcgccggagt	acgtacgggg	aatcgcccta	420
cagccatatt	ataatgcgcc	accga				445

(2) INFORMATION FOR SEQ ID NO:959

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:959

ctcggtcg	ctcctgtggc	caacctgtgt	ggcatccg	gtgctgtatg	tcggaatggc	60
tgatgaacgg	gctgttcgga	ttcggaacgc	tcttcctctt	ttctgcgttt	tttcgctatc	120
gctcaagctt	atgggtgtcg	tcaaacgata	tctgtcgtga	aacggctgat	attctgcggt	180
gtgatgacct	tttgagagc	cttgacgctg	cattcatcta	caaactttca	ggtctcgaag	240
gttttttctg	tggggcggtg	tgacagggtc	agaatggaca	ctgtttctcg	aacgaatata	300
ggtaaggccg	gactgatcat	agttctgtct	gtccttgccc	tcacatagcg	gtagtggtac	360

gcagcgaatg tatgggtttc ttccgccgtt tgtgggacta agctggatct ctattcccaa	420
actgccgaag aaagagagga aaataatcat gacgagtcgg aaaacgagtc gctcggcaat	480
ggctacgaca gggtgaaagc gagaatctct ccggctatct caaca	525

(2) INFORMATION FOR SEQ ID NO:960

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 486 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...486
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:960

gctaagctca tcattctctc gtttgcccc atgaaaagca gaatttctgt agaaacgcat	60
tgcatacaag ggcaatgaga gcagctaaaa tcacagagtg atcactgaga cggaaagctac	120
ctgaccagcc ttgacaattt gcttcgcccc aataagcgag atatatacac tccgccccca	180
acaccaaaca tcagcctatc ccaagaaaaca ccaacgataa agggaaaaca actgatncgg	240
cagcgcagga agagttccca aacgtgcaac ccagaaagta tctaccacat tgtaattgcc	300
ataatcagca ttgcgatgac aataggtatc cccaactttg tcaggatttc atcatacttc	360
cttcttgcaa aatattacag cgttgttcat cctataatct gtatcttctt aagtaaataa	420
attctgctgc aaaggtacag gggatacagg gtcgtcacia tagacaaaaca acggtgataa	480
tagcac	486

(2) INFORMATION FOR SEQ ID NO:961

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1598 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1598
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:961

tccccggccg	atgccgctct	gaaatacgat	aaggaataca	actgattgaa	aaggcaaaga	60
aggagcttcg	acaagactgt	ggagcatttc	ttacaatagt	atggcagcac	cgcctctata	120
gctcgtttaag	ctatggggcg	gatgcttctt	tttgagacct	gaggtcattg	atccggggat	180
gctcaatcgg	gatagtgccc	cgatttcttc	aacgccaagg	tgaaagtggg	cgatctcctc	240
tgggcggcaa	cgtagagatt	cattgcaggg	cttcggattg	gggccgtcac	gggctcatct	300
cgatccggct	tatgacaatg	tagtactcca	tgtggtagag	acgatgacct	cccgatacgg	360
caccgaatca	gcgggtgaacc	tgtccccgtt	tggttatgca	tgtagacgaa	cggcttaggg	420
caaacgccga	ctttatgctc	cgacgtccct	tttgccgggt	tgtaggaca	ggctccatga	480
acttgatagc	tcgaagtcca	cgactggctg	gacacgctcg	tcgtagaacg	attggagcga	540
aggctgccga	agtggatcgg	ctctatctgt	ctacgtccat	ggattggatg	caacggccta	600
tatcctgtta	gctcgtcatt	tcggattcgg	gctgaacacg	atgccctcga	gcggcttgct	660
cgcagcctgc	cctttgccgc	catcgcaagc	atcggagcaa	tctcctgcaa	gtggaagccc	720
tcttgctcgg	gcaggcggtt	tgttgccgga	ccttgaggat	gaatatgccg	agaagtggc	780
ttcgaaatag	cttttttgag	acataagttc	gacctgcagc	ctcttgatcc	ctcctctttc	840
gtctgcatcg	cgcccgtcct	gcctctttcg	tacatcgctg	atgggacagt	tggccgccat	900
tctgcatcgc	tgcgagttcc	tgttttcttc	tttgtggaga	ctgtgtccgc	taaagaactg	960
gcacagaagc	tcagcgtgga	gcacgtcttc	actgggcttc	gcattatcgc	tttgggaagc	1020
ccacccctgt	ccttcccgtg	gtacgcttgc	cgctatttgc	tcggatgccc	tgctgatcat	1080
gtagcagccc	cacttcgcta	tgcttggttg	agggggcaga	gcattggagac	taccgcgagc	1140
ggacaataga	cttcctgcgt	ggcatcaaac	ccgaaacaac	aagccgggtc	gtgctttctc	1200
ccagatctgc	cgacctgcgg	atgctccgaa	agccaagccc	tcattcagct	ctatcgcgaa	1260
tactgcgagc	gacgaaatgc	ttcttttgtc	gctggggcta	tcgcttgctg	agctgctgca	1320
aaggtaaggg	tgcacggtt	tcgggaagaa	gtccgaggcc	aaacacttcg	tccttactac	1380
cggtcgctca	ataggggaata	tgtaaaggcg	cttactgtct	ccaagaggcc	tcccacttga	1440
ttttatcgct	ttatcatagc	gaattgcatc	cattgcaaat	acgtttttat	agatgctgtc	1500
tattagagca	tagatgaaaa	cttgattgtt	tttgtaattt	tgaaacgttt	tcagagcatg	1560
taactaacac	gatttatcac	aacacaagaa	ttatgtca			1598

(2) INFORMATION FOR SEQ ID NO:962

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 492 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:962

cgcgaaatcgg	agggttaagat	gcaggagtcc	atcaaccacg	ctgagggagg	gagcaggcca	60
agattctcag	agccaaagct	gaggcagagg	ctaagatatg	gtggccaagg	cagaggccga	120
agctatccgc	cagatcagcg	aagcagtgcc	ggtagtgggtg	ccaatccgac	ccaatacctc	180
attgccatgc	agtatacgaa	acgctcaagg	acatcaacaa	gggcgatcag	accaagaccg	240
tttactcccc	ttcgaggcta	ccggtatgct	cggtgccttg	ggcggtatga	aggattgggtg	300
aaaggatgag	actctctgcc	attcttatcg	ctttgattgt	gatctgcctg	ctgtgcttag	360
cgggcagcat	tattattcca	tggcggggaga	gcactggaga	cggacagcat	tcgtccgaac	420
gaactctcgg	catcgatccg	agtgcgcttt	tctttcggaa	caatgaatac	caatgcacgt	480
tcggtcaaaa	gt					492

(2) INFORMATION FOR SEQ ID NO:963

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1779 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1779

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:963

gtaagtcagc	caagcaggct	ataatgatcc	cgaatggtac	cgccgtggct	gccaaagcca	60
ccttcccaag	tgacgaatat	cttggccgga	ttggccaata	gtatgccggg	tcatagaata	120
ggacatgtcc	caaacgcgct	ccgacgatag	tacctacaaa	agacatagac	ggccaggggac	180
tcgaaccatt	tggaatcagc	ttctcgtgtt	cccacatttt	tttctctatc	caaggggcca	240
gaatgtcagc	cccaatgcaa	aagagcaaac	cgtaccagac	aatagggtgc	ccgagagggt	300
aaatagaacc	ggatcgaaat	cccatgtgat	gaatgcagg	agttcataat	gttccgatta	360
accgtttagt	tgagtaatat	ttttcaacaa	agtttcttat	ccactgctcc	ctgtctccgg	420
ggagaaggtc	tatgacgggg	attcctgtaa	ggtgtaagct	ccgggttggt	ggcgcatggc	480
tgctcgagct	cacagaccag	tacttgctcg	gtgagagcgg	ggttgtttat	ctccatgtca	540
atgacattcg	ctggttttgt	gtggagccgc	ttacaccctt	acgcaccagc	ggacgccatg	600
ccccatatcg	atgagggcac	ccacttcac	tacctgttca	cgtgggtttc	gtcatgaacg	660
aaataactcg	ctgctttgat	ggcagcgata	cctcctccaa	ggtgtgtccc	ggaagcagtt	720
ctacgtaaac	catgcacgat	gtacaccctg	tccgagagga	atggtcatag	aaagtgcggc	780
cttgaccgtg	ctatggcttt	tacggctacg	gtgtgcccc	tgctcatgcc	cggccgaagt	840
tcgtgtagg	gattcccttg	ggtagcatag	cctgcattcag	tggcgcaacta	cagagtcgct	900
gcccggatcc	cagcctgaag	cgatgacggc	tccgccccac	tttttccggc	ggcgtctccc	960
aacgatcgac	gcaaggccaa	ataccgtcgt	ggatgtcgaa	actgtcagca	gtgcatattc	1020
cctttttcat	atctccaagg	ctgttcgctc	tacttcacga	cttggtgagc	aaaccaagcc	1080
acatcgaccg	attcgagttg	ctcgatgtcg	gatactacac	ggaaagggtg	agctcgaagg	1140
gaacctcggc	cggattgcgg	cggacaatgc	cggctattca	aaatctggag	cttctctaag	1200
cgcttgcaag	gcataccgac	cgatatgccg	tagcctacga	tggctgccc	aatctttttg	1260
tcgtctgtca	tttgcaaatc	tgggggatag	ctgttttgcc	cctgctctta	tttgagtagt	1320
ttgctttctc	tctgagactt	ttgaccacag	catccagcaa	cccgtttacg	aagttccgct	1380
cttggtgtga	ctgaacagct	tggagaggtc	gatgtattca	tgatcgttac	caagaccgga	1440
atattcggga	agtggagcag	ctcggcgata	ccagttgcat	gatcagcata	tccatgtccg	1500
ctatgcgata	cacttcccat	tgatcagatt	ttcacggatg	atatggcgat	attcctgtcc	1560
gttgatgagg	cattgcgcag	taggggtggtg	ccgaatacgg	catcgtcttt	ctccttgatg	1620
caggaagcag	gatagccgat	ggatcggtgt	cttgctcgat	ccgtcgattg	tcttgaggac	1680
gaactccttc	acgatttcga	taggtgcatt	ttccttagga	tcgtttggta	gttgccatcg	1740
gcaactgctt	gtcgtaccga	catgtccacc	tcctctatg			1779

(2) INFORMATION FOR SEQ ID NO:964

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1037 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1037

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:964

cgcgaaaatt	ttttcgttgt	ggcgcgagaa	gtaaaaattt	ttggaaccaa	acgaaaaatt	60
tctcgcgcg	gttttcgcca	aaacacgcac	cgcaatccac	cgtttttggc	tcgtaatctt	120
ccgacagtag	gaagctcttt	tcatcggtcg	tgtagctcct	tgtgagaaaa	taaagatatg	180
cccgaagg	aaataaatc	ggatttatta	ccggttacgg	cgcggaatac	tctcttctct	240
ttatttcttt	gccggaagcc	tgaccttttt	tatccttgca	ggcaatccta	atgagaagat	300
actaccacac	gttaccaacg	aaacggctcc	cttgcgact	gtctactggg	gttgccggat	360
tcgaccggcg	gagcacctgc	tctcgccgac	actacgatgc	caagagttat	gaatccgtgt	420
tacggggcac	ttatccttcg	gcgaggatat	caagatagaa	atggatgccg	tactcgatgt	480
actggtgcgt	atggcataga	ggtgctccgt	cccagaccga	tagcaaacta	caaccagatt	540
ttgcccgcga	tgtggctttt	gccatcgatg	acaaactctt	cgtatcgacc	tgatagccga	600
tcgtgcccgc	gagtccgaag	ccttttcgcc	catttggtat	gtgtcggaga	gagccatctg	660
gtacgcctta	gcgaagatat	tcatgcgaag	gcggagacat	cctgttatat	gacgatattc	720
ttttcatagg	cacctccttc	agaaggatta	tccttccttc	aagacggccc	gaaccaatgc	780
acggctgtag	acttcttccg	cgaatttttc	ccacacaaga	ccatcatacc	gatgagctga	840
tcaagcacga	caccgatccc	atgcgctcgg	tgctccacct	cgtgcgctt	tccaaccggt	900
aggccgcagc	cgcgccatag	tctaccgcca	agattcctgc	actctgagag	cttcggcctg	960
atcacagaga	tatcggtggc	gggacaacct	gttcgagatt	acacccgagg	aagetatatg	1020
atgaatacca	tatattc					1037

(2) INFORMATION FOR SEQ ID NO:965

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1677 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1677
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:965

catagtatga	aatttatcat	aattagttgc	tacagcagac	gacgcacaat	ggaagataca	60
tttactttta	gagctgctcc	ataggcattt	ttttactgaa	tattgaaagt	gcgccttttc	120

gttgctctgca	agttgatact	tatagattta	tattcaccct	gtgaagtcac	atctgtatga	180
tttatttcct	cgaaagcatg	gttgtagcta	acgaactatg	gttacggtga	ttgctatact	240
ccacctattc	agcgtgtagg	acttcggtac	tttcagatag	atatttctaa	tcttacacca	300
ggacgatatt	cattggcata	ttcaaatgca	ccagagccga	aacacgggcg	tagtggttag	360
caacgcgtcc	cagatctgtt	ggagtagatt	gtaaattgaca	tgtggatcgg	taccgtttac	420
aacaaaagta	cccatgatgt	aattctcgggc	acaagtatga	gacaagttaa	cggattggct	480
tcatcccata	cggtagacaca	ttggcggtag	agttgtagaa	gaaccactcc	ctaccgactg	540
cgtatctact	ctatgagcat	tctgggatgt	taccgataaa	cgggtaacac	atccactttg	600
tctctatcaa	gcaatccacc	agcaggaagg	attgaagaaa	atcccagtcg	atcacctgct	660
ctgcattatt	atttcggcgt	attgaaggaa	tgtcgtatat	ccatctaccg	atacaatctg	720
aacccccatca	cggaaatcct	aatatcggcc	gaaagaggag	taagcgtttc	tactcgatcg	780
acaccgtagc	caaaacaaaa	cgggcgcccc	aagacgaagc	agtaccatgc	tggtagaagt	840
cgctgtaatg	ttgacttcgt	ccatatatag	ggcttttagcc	aatcgttaagc	cgatatattg	900
ctacgagatt	gacgggtccg	catcgtataa	tcgtccagcc	caacgaattg	tcggcacggt	960
ctatcttagg	caccgaagtt	cgcacactct	accgcaggga	ggatcgcagc	ccaaaacata	1020
acgctttgcg	tgtttacacat	aataggacct	accgggcaaa	gacaatcagg	gaagtgaagt	1080
agttgaatac	ctctctaata	ttatactcca	caaccatttc	gtgattattg	tacagtcgta	1140
tttcacacca	tggagggtta	caaaacctct	ttcttgctgg	gcgaaacgat	agtcattgtg	1200
tttctgatg	tcgtgatatt	tgcataggga	ggttaatcgg	tggagtgaag	actaaggacc	1260
cgtctatcgg	atgattttta	tattggtcca	ttctatatcc	gatttgggag	gcatagtcac	1320
acctgcggga	atactatttc	taccacatac	cgcgtatttg	gattggcgta	cctatattat	1380
tatatgagct	gaggatggaa	tagtaggaag	tcattatctt	cggtcgaaag	gcgtatcctt	1440
ctctattaca	gtaggcattg	gagaggcatc	tgtaccgact	cacgagacaa	atacaaatga	1500
gtactagaaa	gattgaacct	gtgttgggat	ctatccatga	ggttctatca	caagatgtct	1560
gatatagttt	ttaagaatca	agcccctatc	ggacaaatca	tttggagcgt	tgttcagacc	1620
gtaaaactgat	cacacttttag	cgcacccgtt	acagtaatcg	taatagagct	ccgacag	1677

(2) INFORMATION FOR SEQ ID NO:966

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 860 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...860

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:966

ggatccccctc	ttcgatctca	acgaatacac	cgaaattggt	gaagttgcga	cacgagcatg	60
gtgacgagag	cctacagggg	aacgagtttc	gatatcagcc	aaggatccgg	cttgagttgc	120
ttcagaccga	gcgacatttt	gcgttctcgc	ggtcgagcgt	caggatcacg	gcttccactt	180
cgtcgcctac	atgcagaagt	cctgagcaga	acgcaagtgc	tgtgtccatg	acatttcgct	240
tacgtgataa	gaccttcaac	gccctgtgca	atctcaacga	aagcaccgta	atctccatca	300
ccacaacttt	acccttcacc	ttatcgccca	ccttaagctc	gcttcgagag	catcccaagg	360
atgaggcatc	agctgtttga	gtccgagagc	gaacgcttgc	gatcttcacg	aaagtcgagg	420
ataacgacat	tgatcttctg	accagctgta	cgattttctt	cggatgagcc	acacgacccc	480
atgaaaggtc	gtgatatgga	taagaccatc	cactccaccg	aggtcgataa	atactccgta	540
gaagtaatat	tcttgacgat	accttcgagt	acctgccctt	tttcgagctg	ccgatgattt	600
ctttcttctg	ttgttcgagc	tctgcttcga	tgagcacttg	tgggaaacaa	ctacattctt	660

atattcttga ttgattttca caatctgaac tccatcgtct tctcaacgaa tgcacgtag	720
tcgcgaatgg ggcgccgtcg atctgtgac cgggaggaa agcctcgata ccgaatacat	780
cgacatcata ccacccttgg tacgacactt cacatagccc tttacgattt cgttttttcg	840
agagcctcgt tcacgcgtc	860

(2) INFORMATION FOR SEQ ID NO:967

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 583 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...583

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:967

ggatacgtcc ggagaagggtg gcagcagtg taagcagggc agctccgatt attcacctcg	60
aaacggaacg aggggtgcccc cctgtgggtg caccctcgtt gtacaggccg gactgatccg	120
gcttagagaa ttgtctccag ttgatcggat tcggatctac tgcccgtata atcccatgtg	180
cgtccaccag gtaacttgga aacggatctt caagccatag atgttgagca ttgatcgcg	240
tttacatttt ccaccagtcg ctgggcagac aagtctattt ggtcgaaagc caagtatttg	300
tgaataccga caggtttttg tccatcgaaa cacctacata ccgacccgac tgtcgggtct	360
tttgcaaaa taacgagacc atcggacatt acggccctgc tctctccatc gtatgccgcc	420
cagaagtggg tcagcgtgta caagcagcct ctgggctgcc gtccgattgt acgaccaaag	480
actttacctc ggcaccgctg cccctactgc caagccatct atggcttcgg atggagaggg	540
gccgagctac ccgacaaaag caaggcagcc gcgaccaatg agc	583

(2) INFORMATION FOR SEQ ID NO:968

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1401 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:968

gcacggctgc	acgaagggct	tccctatccg	attctttttt	gatggccggt	tccatttcat	60
cctgttgcca	agtctgccgt	agtcgggtatc	gctgaaccca	aatgggtgtac	acagacttcc	120
gacgtgattc	gcttttgtgc	tgtgggttat	cgttgcggaa	gagactcagt	tctttctctg	180
tcgatagatg	caggattgca	gacgggcatt	catcctctcg	gccagctcca	ccgcttctgc	240
cgatggcggg	aacaagcctc	ttcactacgg	atgagaggat	ggaaatgtat	gtccaatcat	300
tcccgtatth	ggctttgtag	tgtcttttgt	tggctcggat	gattcctctt	tttcacagtg	360
cgtggcgatg	agcaggctgc	attctccgaa	tatttctcca	gcgtttcctt	attgtccaca	420
agcatattgc	cggtagatga	acgaggaata	gcttcagacc	gggtaccaga	tgcttgtcca	480
cccgtttgat	tcatcgatgt	tgtcattcgt	gccaccgaag	aagaagccgt	agttggccct	540
gccgtgtctg	caccgatctg	ccttttctcc	agcagtcgct	cccacatttg	gtaggaggat	600
tcgtattggg	catatccata	aacgaagtga	ctccgncgct	actgctgccc	ggctttcaga	660
ggcgatggta	gcttttgtgc	tcagtcgggc	tcgcggaaat	gaacttggtc	gtctatacat	720
ccggggaata	gcctcgaccg	ctacactcta	tgacttcac	ggcggagaga	ttgtcatccg	780
cgggagctct	ccttcgataa	tacgggagat	aaatgcgcca	tcaatcatca	ccgaccgggg	840
aaggtttttt	cctcgttggg	gataagtgcg	ttgcgaagaa	gattttcatc	tctttcgtac	900
tattttcttt	tgggaaatcc	tttgaataag	tccagtagcg	tagcttgatc	acgcccgtaa	960
aagcttcacc	gaaaatagaa	tgttcatttt	cgacgttccc	aaaacacgat	tgacgaaagt	1020
gatgggtatt	ctttcaggcg	aaatccgaga	caataggccg	tgtatttcat	ctcgatttga	1080
aagcgtagcc	cttgaaatgt	accgaatcaa	gatcaatggt	ttcaagactt	cgcgggcggt	1140
gcaaacaaat	ccggcagtcg	tgtcgcata	attcataagg	tcacgagacg	cacatatacg	1200
gatgcgtagt	agctcatcca	tacgcacttt	taggccagtc	cttgacgcct	ccgcccata	1260
catagcgcg	gcccgcgcta	catcggtctc	tcctccggcg	caggcattgt	atagatcgat	1320
caattgtcta	ccgggtgggt	gaaatcgag	tccatctcga	atatatagtc	atccctcgcg	1380
cgatgctcca	tttgaatccg	g				1401

(2) INFORMATION FOR SEQ ID NO:969

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 768 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...768

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:969

ggacgatccc	tcttccctgt	gnaattgaga	aaccgtacac	ggctaccgag	gtgatattat	60
ttgtactcat	tgttctaaat	aagtgggtatt	cataatttta	ctccacaaaa	atacaaaaaga	120
acgagcgggtg	tatcaaagg	ataaaaaaag	gtgtgcaaaa	atcgccctaat	tgcgatttctg	180
acacaccctc	tttccaaatc	gatttaatta	ttgtctttcg	ctaaccgtcg	aatcagctca	240
gtttgggatg	attagaccgg	aacgaagttt	cggctcgaac	caagtagtct	tgggggcatg	300
atattgccc	aatcagcaat	gtccatcagc	tgtttcatcg	atacggataa	agagcgagag	360
caacacgc	atcgcactg	tctacacgct	tttcagttct	cccagtcg	gaataccacc	420
cacgaagtgc	atagcttgt	cgagcggaga	tctttgatgc	ctaagatctc	atccagaatc	480
agattcgaag	gacgtaaca	tccagttacac	cgataggatc	gttgtcatca	taggtgccgc	540
ttttgctgtc	agcgaatacc	atgtgccacc	gagatagaga	gagaagtttg	cagcttgagg	600
gggcgatatt	cttccgtccc	tttgcattct	acttcgagtg	ttagagacagt	ttctgcaaga	660

attcttcatc actcaagcca ttcagacttt cactacccgg ttatagtcga tgattgtgag	720
ctgatcggca gggaacatac agccatgaag tagttggact cttcatcg	768

(2) INFORMATION FOR SEQ ID NO:970

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 431 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...431
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:970

gcacgttgt ccacggaggc gggccattga caggaacaaa taccctgttt tcagaatcag	60
agagttcgtg tacggttggt cattggtggc caaagcgcat atacctcgta cttcgttccc	120
catgcgcagg tctgtgctgc gaagtagctg ccatatcttc cagggcttgg tgctgagggt	180
gattgtcagg cactttctga tgaggatttt gttcggtgcc aaatacttgc cccaacagtc	240
cacatgttga tatattcgcc gttcggatct tgtaccacat catgatgtgt gatgcgagat	300
agctttcatc ttttgattac ttgagcttga gacagagagg agtctccgta tatgcgatat	360
gtgactgcac agcggatcca tatccgtccg tctgtagttg ccaccgggtct gcttgagctt	420
catcccgaac a	431

(2) INFORMATION FOR SEQ ID NO:971

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 561 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...561
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:971

ggttaccaat ctcaccggaa ctgcttccaa tgacgaagtt tctttggacg ggacgggtgtg	60
gaagagaaag ctgaagagcc ggcaagtgat aaagcagtag ctacaacgtc tacaagaatg	120

gaaccttgat	cggtaataca	gctgaaatca	ttatgtggag	accggtgtag	ccaatggtac	180
atacatctac	gaagtgaagt	aaagtatcct	gacggtgtat	ctccgaagg	ggctgtaacc	240
gtgacgtgac	caacagctca	ttgagcaatg	tagatggaca	ggctccttac	acatgcgagt	300
agaaggcaag	aagattattg	cggaagccca	tggtatgac	acgtctacga	catcaacgga	360
cgtaccgtgg	ccgtagcccc	gaatcgattg	gatacatggc	gcaaaccggt	ttctatgcag	420
tgcgcttcga	tgtggggaat	aacaccatgt	atcgaaaata	caagtaagat	aaagcagata	480
ctttcccctg	ctaaagacaa	agaggctgcg	tcgagattat	ttttcgatgc	agcctcttct	540
tttgctactc	atgcccgat	t				561

(2) INFORMATION FOR SEQ ID NO:972

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1315 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1315

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:972

gagtctattc	agacaaagca	attccttgag	tttttccttc	ttccttcgct	cagtctatgg	60
gcaaagctac	ttgttgccga	agagtgatcc	gccacaaaaa	ccgtatcagg	gcaaaaaacag	120
aagcgcgagc	tgctgattcc	attcgaactt	ttatcaagcc	aagcccggcg	ttgcccttgc	180
tattgggaaa	tacgtatacg	agatgaagcg	gagacgatga	caacggaaaa	atcaatccgc	240
cgaaaagtgt	agcaggcatc	atctcacagc	cgatcggttt	acgtgccgga	attttgtgtt	300
tgagtttgg	aaaaacgtgg	tgcgtaaaact	ttttcgcttt	ggccgagaag	taaaaaaatc	360
tcgaaccaaa	acgaaaaaat	tccggcacca	cctcttcaga	aaagacgcgc	cgcaatcaga	420
ggattttcgg	ctcgtatcgg	tgatagtgg	ttgatggata	ttgactcgat	agtagagctg	480
tcctccaacg	cagccctaag	aaaaactcga	taaaaaaagc	actattctca	ttgccggact	540
cgaagagatc	gtcaaggacg	aaccgaatga	aaaccaatga	gatctcatgc	cctcttcgac	600
gaaataaccg	atcgttccat	ccgccagcag	agtcataccg	agtaggcact	cgatcctgaa	660
ttgacaacaa	cgggagcgga	ccagcgccgg	agacatgac	gaagagatag	acagctccat	720
cgcgacgccc	atccggccga	gaggcaggga	gtgcagcact	tgatcccttc	cgttcctttt	780
cactgaagca	tagctccatt	acagccgggg	tcattgatgc	cctcgaactg	cttgctctct	840
tccaagtaag	gccatcgctg	gaggagagag	cgaagaaacg	cttcggctct	cctgccgtcc	900
ctgattgcgt	atgctcatca	gtaccctgcc	acgggcatca	atgaaagctt	tgctcatcgc	960
ccacggcggt	atgcacagtc	gaaagctgcc	atgtatcagc	cctcatcgtc	gctatagagg	1020
acatagttgt	caggacgtac	tcctgccctg	attcgcggat	ggcagccaça	aacgtgatcg	1080
accggatggc	agcacaagcc	cttgtcccga	agcacaaaag	gaggccacca	gcgactgcgt	1140
cccggatcgg	cacaatcctt	gccgaagatg	aaatggttat	atcccaggga	ggcgaccaag	1200
tcagtccttc	gtcccgaactt	tccgaatata	agtgcgctga	ggacgatcgg	gggtagactg	1260
ccacaggcct	actcaccgac	aaagatcatc	aggagctttc	ctgcttgggt	ttgca	1315

(2) INFORMATION FOR SEQ ID NO:973

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 419 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...419

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:973

aggcaataga	catagccgat	agtatgttga	ggaaagcaaa	ggaagagaag	aggaaaagga	60
aaagaagaaa	gataccgtag	ctatatccat	acagaaacca	gtgggcagaa	gatagagttc	120
ctactgccgt	gtaagcatag	taccgatagt	gtaaacaaga	aacaggccta	tacaaaaagg	180
caaccgagct	tatacggcct	ttaaggaaga	tgacagtatg	ctcaacagtc	ttatctattg	240
gatagagatt	gttgagacaa	ttttcaccga	cgagggtacc	tataccaaga	gcgacaatgc	300
ggcttgacaa	ctttcgacga	agatcacagg	agaacgaagt	gttcgactct	gaagaagtat	360
ccactccatg	catcactccg	aagatccccc	gcgttgaaga	caaagaacta	ctgcacgca	419

(2) INFORMATION FOR SEQ ID NO:974

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1905 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1905

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:974

aacttcaccc	gaggggcaag	ctgaaagcat	catacttaat	tcgctcacct	acttccgaaa	60
ctcatgccca	cacttcatcc	ctaccctatg	attgagagtt	cttgataatg	atgaagcggg	120
ggatcgagca	acgaaacaac	tcacgagct	gggctacccg	tcaaggatat	gcgagcgtgc	180
tacgctccct	ataaagcatc	aacgagtatc	tcactctagc	ggagcaaagg	aagaagatcc	240
tcactcgcac	aagcgaggac	tgcgctgata	aatcaacact	ctcagctccg	caatagaaga	300
ggccaatgtc	gagacctcga	gacctcgaga	tctcgagaaa	ttattaatcg	aggtctcgag	360
cttaagtttg	ctcgagcgct	aaagaaacag	aggatcggtg	gaggcaatga	agcatccctt	420
cttgacactg	gcaagggtgtg	ttttgtacca	caaattgccg	tttgaccac	aaagaccctt	480
gccccaaaag	gggatcaatc	actccgaagt	cgtgaataga	cgatggacaa	aaaatatgat	540
atgcaccaa	gagcttctca	gtaagcaatt	cctgacctct	caacaagaat	ctcacgagac	600
gttgagatg	tgcataggct	ctattgccag	aatagattat	cttcatatgc	atatgaacct	660
gataagtc	aaatctttcc	taaacctgat	gattttttgc	tctcattaat	ttttctccta	720

aagaataata	gacaaaacac	atctagaatg	tgaaagatat	tctgacaaat	agtcttttcg	780
cataactaacc	cctttaagct	tccacccgaa	tatttaccga	aacgatttca	ttgtggatat	840
atctcttact	acacctcttt	cggctgtgta	taactttaag	tctccataat	gtgatgggtg	900
ggcatgcata	cttcgggcaa	ccattcatta	gatcatcaaa	accaagctat	tttcctgcaa	960
ttgagactca	tatgacaact	caatttaaaa	cctacacctt	cgtagctatg	attcttttcc	1020
cattcatctg	ttgtcgaatg	taggtctctg	cccaagggtg	ttcattccac	aaataatcgt	1080
gcttccattt	aggcattcag	gcattccatg	cccatagaag	ttctgttttt	agcccatctt	1140
ttgtaagcac	tcaactcttc	tttcttaatg	aaagcacatt	ggtatacaag	aagagatctt	1200
tgatggatcc	atctgctgct	tctgtttatg	cccatcatag	ctcgttagca	gcacccagtc	1260
tgcattatcc	ttgttttcaa	gagcaaccgc	ggagctggta	attgataccc	tctatccatc	1320
catgctcatt	atcaacatta	ttaacttctt	ctaatagatt	gatttcaaaa	gaataaaatc	1380
ttttccttgt	ctacccaata	gtgatggatc	tattgtggaa	tttcgtctgt	caaccatgga	1440
taagggttcg	atgccatatc	ctcttgtttg	gtatagcata	accataatat	ctacctttca	1500
aaatcgaaca	ataatcagaa	gtattgcata	tgttttatac	aaggccatcc	aaagatattt	1560
tttaccaaac	gctccgtttt	gttatcatgt	cttgatgtac	tgtatacccc	ttcgtccatt	1620
ttccaagtcc	atcatcccag	ccatattcat	tcaatataat	gcctgcatta	cacctctaata	1680
atgctgcaat	tgaacgggtt	gatattcccc	tccttaatct	cgaagaatac	acgactcgaa	1740
ctagaagaat	tagacccgag	gacaatctat	taaaatcaga	aaaaccgcac	aatgtataat	1800
gcaatctttt	agaccatcag	aagagccaaa	ataggtttct	ttaccctcca	attgtgacgt	1860
cataacgaat	aagggtcttc	tgctatgaag	ggaacttcta	tttcc		1905

(2) INFORMATION FOR SEQ ID NO:975

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1448 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1448

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:975

ggctgttgga	tatgcctaca	cgcagtcgca	ttatatcgaa	gataacgaag	ctggtttgct	60
accgaataact	atcgatccgg	ggaaaagctt	ttctccgaat	tatgaagttg	caaaccaaag	120
atgtgagtg	tttttgctgt	ggcaaggga	gcgcatcaaa	ttctataccc	ctaaatggta	180
gaccgagagc	gggaaagcta	tgaatgacaa	aaaactgctg	gttgcgtagc	acataatcctc	240
caacagcgaa	gacgtaaggt	tgacaggata	ttggagcagt	gtggtatacg	catcataagt	300
cggatttcat	ctgcagcctg	cgagagctga	caatggacaa	gttgtagagg	ctgttacctc	360
acagacagct	aagagagaca	agggtgtttt	tctcctctct	gtcagcattg	ttacaccgct	420
gcttggatga	cgggacatcc	gccctcccta	agagccggag	aaaaaggaaa	agtattgtgg	480
tttagttttt	gaaaaaaatc	gaacctcaca	tcgctctttg	acgtattgat	tatcagtcgt	540
tgcaagaaca	actcttttct	cctgtttttc	gaaaatagga	gaaaaggaaa	ttgggacttt	600
tatttttcgaa	aaatagaggc	ttttcgctat	ttgtaagggt	tgattatcaa	acgggtgtctt	660
tctctatttt	tcgaaaatct	aaaaaagaag	gtccctctct	tcttattttc	gaaaacggaa	720
aatcaagaaa	tctcatgtat	atcaatgaga	tataatcaac	tcaactgcaa	aaatagtgtt	780
gtagtgcatt	tctcaacttg	tatttttcgaa	aaaaatagaa	tcgttctctg	ccatgcgtta	840
cgtttgggat	tattcgtaac	ttgcagtcgc	tcaagtactc	acatacatac	acagtcgcta	900
aggctattaa	gactcactga	ccatgaggta	agtaccatt	ctatcggact	cactatacat	960
acacagtccg	taaggctatt	agactgtttc	gccatgactt	aaataagttt	acaatttttg	1020

actcactatc	atacacagtc	cgtaaggcta	ttaagacatt	actgatagca	ctgcaataca	1080
gcgaatacca	agctcactat	acatacacag	tccgtaaggc	tattaagctg	tcgattttct	1140
ttacccaaaag	ccagtttttac	tggtggctca	ctatactaca	caaggctatt	aagactttga	1200
cagcccttct	taattccctt	ctctaaaacc	tcactatata	tacacagtcc	gtaaggctat	1260
taagacctat	catcttgcta	tcctctgata	aagccctacc	caaaaactca	ctatacatac	1320
acatccgtaa	ggctattaag	actctaagca	ttatagctat	accatcatta	atcttggctc	1380
actatacata	cacagtccgt	aaggctatta	atacttgta	gatagggctt	ttctactcct	1440
tcttcctc						1448

(2) INFORMATION FOR SEQ ID NO:976

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 398 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...398
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:976

gctcctgccg	taatgagctt	tctggagcag	cacaacctca	aaggcaagac	atcatccctt	60
ttgtcacaca	cggcgggtgg	ggcatgggca	agtgtttgac	gaaatgaagc	gactggcacc	120
tcaagcgaca	atcctcgacg	gcatcgtatc	gacggcaaga	aagccaaaga	atcggccgaa	180
gaagtccaca	acagccgaaa	gcgatgggac	aaatcaaata	acgacaacca	tccctactcc	240
agaccctgag	gaatgataga	ggcaagcttt	ccccacaaa	tcaaacacaa	gctcctaccc	300
tccccggttc	ttttccccca	caaaaagagg	cgccatccga	cgctcttttt	tatacccaat	360
aaccacaaa	tacgcaccaa	aaaacttttc	aaaacgaa			398

(2) INFORMATION FOR SEQ ID NO:977

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 611 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:977

acgacctccg	gtacgatggc	gcacccatgc	atatcaggcg	gttttccaat	tgcccgtttt	60
ggggggcgag	tcctgccggt	tcgttatcag	tgagggtgcg	agtctctggt	ggttttgcag	120
gccaattctt	ccctgacagc	atcgcttttc	ccgttaagac	tgtcggggat	aagaccattg	180
agttcgtggc	tccgccaagg	gtcaggatcg	taggactatc	aatacgtttt	atgccgtgga	240
cttgtacagg	cttctgctcc	ggagatcctc	ggagcggtag	ccaatcaaaa	cctgatggag	300
aggaaatccc	tgatctgac	attgtctcta	ctcaggcgct	cctcttgagg	ctgatcgact	360
ggccacctat	cgtagagaga	aaaacgggct	gaggttttgg	tcgtgttgca	ggaacagggtg	420
ttcaacgagt	tttcgggtgg	actcccgatg	ctacagcata	ccgcctcttt	gccaaaatgt	480
tctacgacag	tgggaaggcaa	atgcacctgt	gggagagacc	ttcccgatgc	aaatgcttcc	540
ttcgggtgatg	ggctcatgac	aacaggaagg	tctccgtagc	ttggcagaac	cgtatctcca	600
acaaacggag	t					611

(2) INFORMATION FOR SEQ ID NO:978

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:978

gtcagtgctc	tccccagtgt	attccttttg	gtcaggattt	gatcgggttac	tcgattggat	60
tttgaccgtt	ttcctcatat	ctaagatcaa	aattaaactg	atgggggtgct	tcataagttc	120
atctccatcg	gatgaaactc	gtctgcgaaa	tccttagctt	cgggggtcaa	ctgtgtccat	180
gtaggtgtgt	gatccacttg	aaaccacaaa	agaatgtgcc	taggacatac	tgacaagcct	240
taagacagac	gttttcccac	tgccattgtc	gcctattaaa	aggttgactc	ctggagaaaa	300
aatagctcca	agtcaccaat	atctctaaac	tcttcgatgt	gaatctacta	atcataacct	360
acatatatta	caactagaca	aatatatata	taactcgaga	cctttgaaaa	ataaggaggt	420
ggaggcaggg	caaccgcac	aaatgtaagt	acctgattat	caatcatagt	tttgagtata	480
tncttatctt	gagtataatc	tccgaaatgc	aatcatttga	aaattagcac	ctggattttt	540
cgaatttttg	atgcgttgcc	ctgtgcaagg	tctta			575

(2) INFORMATION FOR SEQ ID NO:979

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1223 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1223

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:979

gacttccgag	tacagattca	ggcactgtat	tagcagggtg	cccgggtgtcc	aggatttggt	60
tgtcttaggg	cgaaaacgcc	gattgcgtgg	cattaagtac	cgggctctta	gcagtcggca	120
taacctatac	cgaccgatcg	aaacctcctc	cgaagcactg	cttactgtat	taatgaataa	180
ctctctanag	ccggcttcgg	taggctttct	ttgcacctga	ggtagtgata	ataatggact	240
atactgtatt	taatgtcagt	tcgatctaag	cgcaaataag	ggagttgggt	ctggtcgaac	300
tgacgttata	gttaaggcaa	taaggtttgc	gacatcctcg	tttgtttagg	aacagcaata	360
tgtgcattat	gcttaccttt	gctcatcaag	gaccgcaacc	gcatggctgt	aggcttcgga	420
tgcatttcca	ataatacaca	tcgacaaaca	aatgaacttt	gtagaagaac	tgcgttggcg	480
gggtatgatc	acgatattat	gcccgggtaca	gaggaacact	tgaacaaggg	tatgacctcg	540
catacgtagg	cattgacccc	acggctgatt	cgttgacat	cggccaccgc	tgggtgtgat	600
gatgctgcgc	catttccagc	gtgccggcca	tcggccctcg	ctcttatagg	tgggtgtacg	660
ggaatgatag	gggatccttc	gatgaatcgg	ccgaacgagt	tctcttgga	gaagccactc	720
ttcggcataa	tcaggctgca	tcaagcagca	actggccaag	ttcctcgatt	tcgatagcga	780
tgcaccaatg	ccgcaaagct	cgtgaacaat	tacgattgga	tgaaggacta	ttcttcctcg	840
gtttcattcg	ggacatcggc	aagcatatta	ccgtcaatta	tagatggcaa	aggattctgt	900
gaagaaacgc	cttagtgccg	agagcagcac	cgtctgtcct	ttacggaatt	ttcctaccag	960
cttctgcaag	gctacgacta	ctctatctat	atcggaatga	gggctgccgc	ttgcagatgg	1020
gcggttcggg	cagtggggca	acattaccac	cggaaacggag	cttatcagac	gcaaggacga	1080
ggagaggcct	ttgcccttac	ttgtccgctt	attaccaaaag	ccgacggggc	aagtttgga	1140
aaacgggagc	cggcaacatc	tggctcgatc	ctgccaaact	tctccttatg	ccttctacca	1200
gttctggctc	aatgtgagcg	atg				1223

(2) INFORMATION FOR SEQ ID NO:980

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 550 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...550

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:980

ggctaagaag	gaagaggata	caaagggaga	gaaggggtgac	atgtttacgc	ggctgctgta	60
tattcggata	tggcgatagc	cttttcgttc	tcattcgcac	aatgggtgtg	acgggtgtcgt	120
ccttggacag	ctctatgagc	aactccacgg	gatgcaccga	agataagaga	taagaactcc	180
ggcagaacgt	tcgaacctgc	tatactgcga	acggggcctg	cggaggagg	tgtctcgacg	240

aagctttgtc	cgtaccgttc	catttcgaac	ctgtcgcgat	gtttttgccg	gtgagagtgt	300
ttgcgactgt	gctgtcatca	tgaggccggt	gagcccccac	acacgatcat	cagactcttt	360
cttaaaaatg	tgttcatcat	acttttttat	ttgaggttat	gaataatggt	ctgtattatg	420
gtcgggaggt	cattcgccaa	agtccttggt	gccgtagagg	gtattgatcc	acatggcaaa	480
aagtttgtcc	tgacacaata	gaccttggtg	atctcggtag	taatgtcctt	gtcgagcagt	540
tgtttgcagc						550

(2) INFORMATION FOR SEQ ID NO:981

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1017 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1017

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:981

cattcttctg	tttacttgca	gagccataca	ctgtctcatga	tcttccctgg	atgagactgt	60
tgcatggagt	ttcattgact	ctttgctgca	gagctgatct	tagtgccttt	gggaaagatc	120
aaacctccgg	tatatggaca	tcgagcaaca	gaaatttccc	caagtttcca	ttagagaagt	180
actcctttcc	tcgtcaatag	gcgagaaata	agaaacgatt	gtcggctggt	tcttgcttcc	240
tgacacatga	ggacgcgatt	gtcggctgat	tcttgcttcc	tgacacgatgc	aggagcgatt	300
gtcggctgat	tcttgcttcc	tgacacgatgc	aggacgcgat	tgtagctgat	tcttgcttcc	360
tgacacgatgc	aggacgcgat	tgtagctgat	ttttgcttcc	tgacacgatgc	aggacgcgat	420
tgtagctgat	ttcttgcttc	cgacacgatgc	aggacgcgat	tgtagctgat	ttcttgcttc	480
ctgcacgatg	aggacgcgat	tgtagctgat	ttcttgcttc	ctgcacgatg	caggacgcgt	540
tgtagctgat	ttcttgcttc	ctgcacgatg	caggacgcgt	tgtagctgat	ttcttgcttc	600
ctgcacgatg	caggacgcgt	tgtagctgat	ttcttgcttc	ctgcacgatg	caggacgcgt	660
attgtcagct	gattctgctc	ccatcatgcg	ctaactatca	gctattttgca	actattttat	720
aggactttca	ttaaattctt	tgccgcagag	ctgattctta	agtgtttttc	aggaaagatc	780
aaactcatgc	ataagggcac	caaacaaata	gaaattactt	gaggtttgca	gaggatcgca	840
tgaagctctc	ctttcttcgt	caaataaatg	cttggtgtctg	tctgatcgat	atgaggaggt	900
gggagggttat	tgtgcaacag	tctctgagat	aaaagaatga	acccatacga	gaggatacta	960
tggtcttcgg	agtcgtacag	tctataacca	aatccactcc	ataaagcaaa	gaangag	1017

(2) INFORMATION FOR SEQ ID NO:982

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 901 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...901

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:982

```
ccccggagcc atgattgccg atgcggtaca ctcgttgtct gatctgctgc cgatttcgtg      60
gttttcattt ttatctccat ttcgggaaaa ccatccgaaa gaaccacgat tacggacatg      120
gtaagtccga gaccctcgcc actgcgacat tgctgttacg ctgatcatca tcggagctat      180
gctctgctcc gatggttgac caaggatatat cgctatctcc gctttgggga cgaattggct      240
cgtccggatt gatagccttg cttatggcct ttgtctccat tgtggccaaa gagtgcgtgt      300
ccgcataacg cgatgtgtcg gaaaagagga aaatagtcgt tcatcatagc caatgcctgg      360
caccaccgta gtgacgctta tacctctgtg gcactttcat cgggattggc tgtgcttttc      420
ttttggggcg cggttggatg acctcgaacc gctatcggct gctgtagtaa gtgtctttat      480
catcaaggta gttttcaaat ggccgttccg gctttccgag atctgctcga acagagcttc      540
cggatgatat tgaagaagag atagaaaaaa tcatattgtt cgaatcgagg taaaagggtg      600
tcgtcggatc cgcactcgca atatcggtaa ttactatctg tcgaagccga tattttgatg      660
gatggaggcc tctctgtggc actatccatg ctgctacgca gaggggtgag aagctgctgc      720
gtggacgata cggccaccca cacatatagt catccacgtc gagccgtttt catgatatat      780
gttgccataa ccttttcaaa ttctgtaaag ctttatgacg actgaaatca aatggaagaa      840
atgcgttttt atgcccgaca cgggtgtgctt gagcaagagc cgcaagtggg ggaaccgggt      900
t
```

(2) INFORMATION FOR SEQ ID NO:983

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1437 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1437

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:983

```
agtattttgtg ttctgcatac gcacaagata gtttccgcac cgtttcggta gaataacagt      60
tatcgacaag tcgaaagaat gtcgggcgtc ttcacagaga aagcgggaagg tgaacgatag      120
tagtccacca gatatccaaa cctgtctcgc tcagctctcg aagcgaaagc tttcatatta      180
tcgaatgtaa tacgacaaaag agctgtaaat atgtcgattg atgggggtgga attccccctt      240
catgacagga gcattcggta cgaagcgacc atcagcagga tcgaaccaac gcggataaca      300
cttcctccga actgtaaate gggtatcaac cccaatggaa caacaaacga aaaagaaaag      360
ccagatgaaa attagccatc ggcccgtcca ttcttccaac ttatctatgg aaaaagccac      420
aaaatcatat agattcgtat cgcttccggc agtcgtaaga tcagataaag aaattctgcc      480
agaaagagtg tatactattc cttaccggat cggactgaat acggccatgc aaactgcatg      540
tttggcttct ttgataaagt gcaaatcgcg gtgctgcttg tgttcggcgt aatctccagt      600
```

tcgttcagag	gagaaataag	caaacgcaag	ctaccgcact	tttccctcgc	ttggatgaac	660
gtggtatcag	ataggacact	ctgccatctc	tctactgaaa	agatgggcta	tactataact	720
atcgttataa	gccgtttgtg	gagaactatt	gctctgtcga	ctataatcat	gactaaccga	780
agatgataca	aatatcgtct	attcagtcgt	ctgaaacaat	cgttttccac	ataactgtcg	840
ataaacctgt	tgaaaattcg	ctgataaaaa	cttgtttatt	ctttgtccga	tcgaaagaa	900
tcttcatata	aaattattct	tctgcaaaga	caaaaagtta	gcagcaaatt	ctcatcaact	960
tttgccaagg	attactcaca	ctcggcacaa	aaacaaacag	accgaattga	ccgtagaaac	1020
aaaagttttc	acattccgat	ggaaactcat	tggctatcag	cattcaacga	agtgtatacc	1080
tgttagtaag	ctatcagtat	ctattccaaa	tctgttaatc	ccctacctat	tcaccgagta	1140
gttacaagcc	ttatcaacag	tttcaaccga	cctcctcttc	ctatatattt	tttcttttca	1200
aaaaggaata	tataataaaa	agaaatcggt	tgcccacctg	ttgaaagggtg	aagcaaccga	1260
tcgtgtcaca	gataagaaaa	gtagctatga	attttatttg	atcagtagcc	ggattatcgg	1320
ttggggatca	gaaattgatc	ttttgtaccg	acgaaaatcc	ttctgggctg	caaggaccgt	1380
atacgtaagt	agaagcttta	cccggtcctt	tgtccgtgtc	ttctgaatag	ctgttga	1437

(2) INFORMATION FOR SEQ ID NO:984

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 447 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...447

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:984

gcaattatgc	ctaactctgct	tggctttcat	ctgccttttt	tttctcgatg	ctgtggtaac	60
aaaaatacat	ttcgtgtcga	agggtcgatt	gccggttaga	agacaccgca	caagtgtatc	120
tgaccaagat	cattgggagc	gatcttttgt	actcgattct	gtaaatcctg	accgaaaagg	180
tcgtttcagt	tttgtacaca	agcggactcc	acaccgtctt	tctaccagat	taaactcagg	240
aagcacatat	taattttgcc	gcaaggatcg	gatcggaaat	caacatacag	gtggtccgta	300
acagcttttc	cgattacgtt	attgaagaca	accaaggggc	tgaaattaac	aatattcgca	360
aggattggcg	ctattgaaag	agcaagcgga	tatcgtttgg	atcattttgt	accgttcata	420
ccaagagaac	aaactggatg	ctcgcag				447

(2) INFORMATION FOR SEQ ID NO:985

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 870 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...870

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:985

tggatgatat	tgcagccggt	cgcaagtaca	tgaaagtgta	caagcagata	aaatgtacaa	60
cgatcccact	cttaatccga	ttcttttggg	caagaagtga	aagcgaccgt	tccccgcatt	120
catcattcct	tccttacgga	caactgcgtt	tccccgtttt	ttacctttct	gtcgttctcc	180
catggctcga	tatctgtagt	ccgcttgctg	gcaataggcg	atgtggcaat	gacaataccg	240
gtttttatgc	ggtagccaag	gcatacccac	agcatagttt	cacactgctg	actcgccttt	300
cctgacatcg	ctactaatca	accctccgaa	caattttggaa	gggtggggat	cgacatcaag	360
cacgaagagt	cttccttggg	cggtcttctt	actatatcgg	acgactcaag	gatgaagcag	420
ttcgactatg	tcatcgacct	aacaatgtaa	tacgttccaa	aatcattcgc	ttctatcttc	480
gctttttcgg	gtcaaagggt	tcagtctgaa	gaaaccgcga	ctacagcttc	ggcagcttag	540
gccaagccac	ccaaaaagcc	aacccgattg	ccttccgtaa	tagaacgaac	gctcagggtt	600
ttcacaaaagc	cgggcttgaa	atacatcctc	cctacccatc	cttctgaacg	actccggaca	660
tatctctacc	gaactgccga	tagtgggata	ggctccggac	accacctcat	cgggatagca	720
ccgtttgccg	gtcataagcc	aagacatatc	cgccggaaaa	aatgcacgag	gtagtgcgta	780
ccctgccgag	agagacgatg	tgcagatttt	tcttttcggg	ggtaagggga	aagaaaaaac	840
atactggagc	agtgggcaga	cgaatcgcca				870

(2) INFORMATION FOR SEQ ID NO:986

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 459 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...459

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:986

cgttcaggcg	aaacgaaccg	acaagaaagg	acttgtgcct	gtcatcgggg	catctcagtg	60
ggcagaaccc	attcaggctt	ctccaccaag	tgcaagaccc	gctcgctctt	tgggacagcc	120
gaaaacaacg	gtcatcggc	aagagtgaat	ggcgggtgtc	gtcaatcaga	aactcgggtga	180
atgcaccgca	ctcatcacgc	acgctttcac	gaactctgtg	aaaggaaaga	aatttttacc	240
gccacgacgt	gaggggatgc	tatcaggggc	aaatccacca	ccaagccctg	ctctggagag	300
tttcggagag	tatctcacac	agacaaaaga	gcgcataagg	attacagagc	tttgaagacg	360
ttcaaaactcc	gtacctacca	gctctccctg	ctcgtgagta	tgtacaaaag	aagcacaagg	420
taagagacat	tcccccttca	cgttggataa	agcctttat			459

(2) INFORMATION FOR SEQ ID NO:987

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 888 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...888

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:987

```
cttttggtcc atacttatag atactcctta gggtgcatta tttttaccg tacaagcctt    60
cgaaagtatt catggtcaga gcggcatata atgattaaac atataaaaaat aaatccatca    120
gcaagattgg ccttgctgat ggataatgta ggaagagaca taccaagccg acgaaatcgg    180
ctgcttgctc cacttgccga ttttagccac gaggctcgcg gtggtcacga tcaccaccac    240
gacgtcgaag ttacgacctc cttcgcgtcc tccttcacgc cgctcacgcc gctcctcggc    300
tgaggctcca cgtagccttc cggtttttcc agtagcacct tgcgctgagt ttgaacttgc    360
cggctctcgg atctatatcg agcagcttaa cgtgatggat tcgccttctt tcagggttgg    420
gtcctcgatg gtctcgaatc gttccaatcc acttcgcaga tatgcagaag tccttccttg    480
ccgggggagga ttcgacgaag cagccgatg gcacacact tgtgatcttg cccggatagt    540
ttctccgact tccggcatag ccacgatgcc cttgatcatg ccgattgcgc atcgatgcag    600
ggtttggttcg taccactgat ctcgatgaca cccatgcac tacctcttcg atgttcactg    660
tggcaccact cttctcctgt atgcctggat gatctttccg cccgggccta tgactgctcc    720
gataaactcc ttgccatatg catcttctcg atacgcgng catgaggcta tgaggatcatc    780
tctttctcgg gctgagcttc catgatcttg ccgaggatgt gtaggcgtnc ttgttggtt    840
gctccagagc attctccaaa atctcataag ctgagaccat ccccttga    888
```

(2) INFORMATION FOR SEQ ID NO:988

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 465 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...465

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:988

```
aaaaagcaaa tgccggtatc acgggttctt cgttgcgggt ataggatgca tgagcgaagc    60
```

cacaaatagc	agaccataga	acaggagcaa	ccaatatgcc	atcctttgcg	ccctcctatg	120
ccatagagtg	gaaatttttt	catattctca	ggggagaata	tcaatcagtt	tatgaatgct	180
tgctgtgtcg	agtgtccgt	cagagagaag	cgcaggcgag	ccgtgtggag	aggcacggtc	240
ggatgcgtat	cgggagtacg	aagaagccat	tgtcctgaag	atgttcggcc	aacgaatgca	300
aggagcattt	tcgcctacca	tatagggaat	gatgtgactc	gatatggcat	ttctatgcct	360
tttcccttga	tagcatcacg	caaaagcgta	gcgaatcctc	cagccgcttt	ctctccatca	420
caaactcagg	tagccgacgg	atatcagatc	agtcctatcct	atcgt		465

(2) INFORMATION FOR SEQ ID NO:989

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 510 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:989

gattgttttt	gatttatata	tagatcgttt	tccatttata	tatagatcga	agtcatttgt	60
atataaatcg	aagaccgaaa	aaggcccttt	cggaaagctaa	ataaaagagg	caccgcgacg	120
attcgtggcc	gaaccgtgcg	ggtgccttgc	ctttaggaga	agtattaaga	gggtttattc	180
ctacttattc	gtcatagggt	ttatactgtt	tgtccgaata	tcgaaatgac	atggtagggt	240
atggggcgaa	aggatcggcc	ggaaagatcg	ggggtataaa	ggtgttcggt	gcactgttct	300
gttatagtct	attatccatg	tagttctatt	caagcaatcg	gcttctcggc	agcgacatcc	360
aacttccgac	agagagcttc	atcgggcgac	aatgtaagaa	aatatggttc	atccgacatt	420
cagcgtgacg	gaggcgtggt	gaaggcatag	agtcttaggt	tgaagtattg	ntgatctcta	480
aatccatatg	cactcttttg	agtacctttt				510

(2) INFORMATION FOR SEQ ID NO:990

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 128 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...128

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:990

gccttaaaaa gccaaattcc gcagagagtt agttttcggtt agttcgaatt gattcttcga	60
ccaaggtcca atagagcctt atagtttcgg atagaaatgg acataatcct aatttgatag	120
cgttttta	128

(2) INFORMATION FOR SEQ ID NO:991

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 268 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...268

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:991

aaataaaaaca cactaataac caatgtgttg tgccattcct ttatatcgac tcacgttaag	60
aaaagaccaa tgggtcatatc gcaaaaatgc cgtacaatgt ctctaataag ccccttgggc	120
gatgttgtag ttcttctcga tggcatattg ctccggggct gccgaggtat tcttccacaa	180
tgtgaagacg ctcggtatcg tcaaatgttt cgacatgatt actgcttttt ttgacctctc	240
cgattcgtac acgtcagttc gtaaaaat	268

(2) INFORMATION FOR SEQ ID NO:992

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 498 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...498

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:992

actaccggtg	gattccggtg	aaactactag	tagattcttc	caaaaccaca	gtagttttgc	60
ccgaaaccac	tagtagtttt	ctctgaaacc	actagtgggt	tattacgcgt	taaaagagta	120
ttgtcgtgtg	ccgaaaaaaaa	gatgggtatca	ggggcggtta	atttcattctt	ggttcaacac	180
cgtttaggag	cacgacgatt	aggatttaca	cctgccttcg	atgaatatcc	tgccgatttg	240
cttgtttcca	gcatatccat	atacaaaaag	gccacccttt	cctatgaaag	agcgccgtat	300
ctgtccctgt	ttctaacctt	acctgaaatt	attcggcagg	atgatagctt	cagaagggca	360
tgctgcagca	caagtgccac	aatcaatata	tgatcagcat	cgattttata	gatgctacct	420
tcagagatag	ctgatccgga	cttcattcgat	gcatgatccg	catgctacac	aactgtcatt	480
attaacgtaa	ccatagttt					498

(2) INFORMATION FOR SEQ ID NO:993

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 388 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...388

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:993

cagacttttg	gcgttgagct	gtattttgaa	gccggcatcc	gtggtgttgg	atcggttcta	60
tccttgcaga	ccgtgacccc	gtgacgaagg	agaaccgcat	ccgcgtctcg	agctcctgcg	120
tctggctatt	ccgcgtcgta	catatacaac	aaccacatgg	atgttatcgc	tgctgcggta	180
aagaatgtat	acgacctcgc	gaaagcatta	cacgtggcta	tgtgattaca	tatgagaatc	240
caatctgcgt	cacttcactg	ttgagctgga	aaaagccaag	taagcggtaa	gaaactgtat	300
aaagaaaacg	gtaaaggagg	ttgcttccat	gtcgagagac	cagggaagca	actttctttt	360
ttttgtgat	aaaaaggttt	tttgtttc				388

(2) INFORMATION FOR SEQ ID NO:994

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 620 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...620

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:994

gacccacagc	atttgcgtca	cggtaagggg	cgactccgta	cccacaaatc	gccgatcaga	60
acgatgatac	aggccacgac	gttgatggtc	atctgaaaag	gataaaacgg	cggatattcc	120
gataaagcga	tcgtccccac	ataacggttt	ggcaatgctg	ctgaaagaat	tgtccagaat	180
ggtgatgtcg	ctcgcccttt	ggctacggca	gtgccatcgc	ccatcgagag	gcccacctgt	240
gcgcgttgag	tgcaggagcg	tcgttcgtgc	cgctgcccgt	cacgggcacc	acttgagag	300
cttcctgcag	caggcgtaca	agcctttcct	tgtccatcgg	acggcgcggg	acatgatacg	360
cagttgcct	atccgagggc	gcagttcctc	gtggttaggg	ctgcgaaatc	cgacccggtg	420
atcatattcc	gctccgtaca	gtttcgtccc	acagccctat	ttggcgaccg	atctcccggg	480
cggtagcccg	gtatcgcccc	ttacgatttt	cacctgaatg	ccggccttca	tacagtcgcg	540
atcgcttcgg	gaacgtcgga	gcgaatggat	cggctatgcc	gactatccat	gaagcggagg	600
tcatgcacgt	ggagacgcca					620

(2) INFORMATION FOR SEQ ID NO:995

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1151 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1151

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:995

tctcaatttg	aatcttgaat	ctctgacaat	atgaattcgt	acttgtttta	taattgaatg	60
tagcaatcat	gagctttaga	tgtacgttag	tggctgaatg	cgattgccct	gttacaaacg	120
gacttgatac	aacattttcc	ctactttgcg	ttagtttcct	atagtaataa	acaacactat	180
gtggcttttg	gagaaagtca	tgtaaaagta	atttgaccga	aggctttgtg	ggatgtttcg	240
ccgaggattc	aagaaggcat	acataaagcc	ctcagtttgt	gtagcatgca	atgaagagta	300
tctcaagggt	gcaatagtcg	gtttgacgcc	gacaaacctc	gtgtcgagtg	tgcgggagtg	360
ggttatgatg	tgaatgtctc	gctcaccact	tatctgccta	tcagggggaag	aaagagggac	420
ttatttggtg	tacacaactg	accgagaaga	tgcccattta	ttgtatggct	tttccacgaa	480
agaagagcgt	cgctcttcgg	ccaactcaca	tctgtcagcg	gtgtcggggc	tacgacggcc	540
agctcatcct	atcttcctat	gctcctcaag	agctggccgc	actcattaca	cagggcaggc	600
cgatgcgctg	aaagccgtga	agggcacg	tctgaagccg	ctcagcgtat	catcgtggat	660
ctgaaaggta	agatacaact	ggaaactcct	cagacgagat	cttgtctgca	cggacggctg	720
taggagatgc	tgtctgaata	ccatagcttc	gggagaagaa	gccatcagtg	ctctaaagat	780
gcttgctttg	ccgatccggc	tatacgcaaa	gcggtcaagt	ccattctctc	cgagattcgt	840
ccttagctgt	cgaagatatt	atcaagcgag	cattacgaat	gtataacctt	ttctcaaca	900
aagaaggatc	acgggtgtct	tgataatgga	aagaaaaaca	aacccattcg	gctacttgca	960
gctctactgc	ccataatcgc	ggccttggtt	tggtcacatg	gcgtccggcg	agtggctccg	1020
tacctgcccg	actgccatca	acaatcacta	tacaactccc	actccggccg	atacgactgt	1080
ttccccgtca	agaagaccca	agctaaagac	taccgttatc	tgggtggaac	tatccactcg	1140
atctgaagac	t					1151

(2) INFORMATION FOR SEQ ID NO:996

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 624 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...624

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:996

tctcttttgac	agagtatatg	tcctcgtcga	gagacggttt	cgtcaataaa	gccggtaaat	60
cggccctcct	ctctgcgaga	gggcagaaat	cctgcaagaa	tggcgaagcc	cttctctctc	120
cttcttgtag	tacacttttg	ttcttcgatg	aacaatgtca	atgatcgcg	tccgactgcc	180
ccctcccca	tctccgatcg	aagcccttca	tgtggcggac	agtgggtgca	aaagtaaaac	240
cttttccgaa	tcggaacaaat	caatcgaatc	ttttttcagg	gctgacgctc	aagaaaagct	300
cgtcgcctga	tcctccccct	aaaaaaagaa	tcccgcgcg	ctcgcggaac	aattcctcta	360
tcaatcgggc	agcaatcgct	tttgcggtca	caaagtacgc	cttttttctt	tacagacaaa	420
tctttcaaaa	tcttttctca	acggttcgac	aaaaaaaaac	agcccccgaa	gaaaaggact	480
ccctcccaag	aagacaaaaa	aagaagcata	tatataatat	agttcgcgcg	cgtaagagaa	540
cccaaaaagga	gcgcaaaaaga	aacagaatga	gaagagaaaa	aaaattctcg	caaaaagactt	600
ttcagtccca	aaaggcggcc	ggct				624

(2) INFORMATION FOR SEQ ID NO:997

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 665 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...665

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:997

tagtccgctt	ctttgcgatt	agctgtttca	atcttgttat	ctccgcacac	tccagaaaagt	60
aatgtgtact	ttagcatcct	cttcataaaa	gcaatgacca	acggaagaac	gcttcggata	120
atttttaatg	ccggtgttaa	gaaacaaaca	gatctcaata	atcactgact	gtactgtacg	180

atgacaaagg	tgcgattatt	cttacaaccc	ttttcctatg	cctcgcttgg	tgtacccatg	240
cgcagtttct	ttcactgtac	aagctcctgc	gagtgtggcg	atgggagAAC	aattagagtg	300
agttttaccc	tcaaagatgc	taatggaacg	gaattcaaag	ctctgccatg	agcgactttg	360
aagtcctttt	tggcccggcc	actgctacaa	gccattcagt	tccattttcca	acggcaagac	420
cactttgtct	cgaagtatca	ctatacatat	accctgatgc	ccaaatcggg	cggcaccttt	480
cagatcggtc	ggcctccatc	cgtgccaacg	accgagatta	taagaccaag	caggtatcct	540
caagggtgct	ccggccgata	aaaaatcatc	gaaaaatact	aagtccttct	ttcttcctca	600
cgagtcgatg	ccgtagtttg	ttgtccgaac	catcatcata	agaccaatgt	acgagcagga	660
agcga						665

(2) INFORMATION FOR SEQ ID NO:998

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1230 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1230

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:998

ttcggcgact	cctttctcag	tatatcccat	taggtcaggg	caaaagccga	tacagctccg	60
gtgtcacgac	cggtagagtc	gatccgcgga	ctacggataa	agcataatag	gcacgaaaga	120
tgagagcata	agcatcaaga	aggaataatcg	ctcggtcata	tcgaatctta	gttagagggg	180
ggatttgaaa	aaaaggaggg	gaagctgtca	ttcggcaagc	ttcaggacga	gagcagagcg	240
agccgcagat	agagggtcaa	atactgttca	tgggtaaacc	gatctttact	cccaccggaa	300
gagtaaagtg	ctccacccat	tcgtccacac	gaccgaaacc	ttctacttcc	gtgcatcggg	360
actcatcgct	accgaatact	taccggccgg	aaagggatgg	gataatccga	ataagaacgt	420
tcgggggtgaa	aattgaaaac	gagaagaaat	cgcctcgacc	gtaacagatc	acctgctctt	480
ctctcttgag	cagtattcgc	gcaaagggag	tttgtgaaag	ctctccaccg	atcgtatcag	540
gctatcatat	cctgatcaaa	caagtgcaga	cctgcatagc	gcaagaaaga	ctatcgcca	600
gactccactg	cctgcgggca	tacttgtacg	accagccttc	ccttcgcgag	ggaagtctat	660
ccactcggga	tgtccgaatt	cattgccatg	aaattgagat	aaccaccatt	catcgtcgtg	720
gcagtgaaga	gacggtcata	ttcagcagtg	caatgcctct	gtccacgcta	tgtacacaac	780
tctgttttc	atataccaat	acatatcggc	atcgatcagg	cgaaatatga	ttgcttgtcc	840
ccgaccaaaag	cctgatcgtg	actctcggca	tagctgatcg	tccttcctcc	tgacggcgat	900
tggtcagttg	ataccagatg	tcgcccggat	tcagtcttcg	tcacgatgct	ctttgatgag	960
cttgatccag	aaatcgggga	attcatggct	aaacggtagt	caaagccata	tccccatct	1020
gccaaaggag	agctaataccg	ggcatgccgc	ttacctcttc	ggctatcgtg	attgcatcgg	1080
gcaaagtctg	tgaatgagtt	tgttggccaa	gatcagatag	gcaatagatc	gccgtcctga	1140
tggccgttgt	aatagctgtc	gtaattgtcg	aacctacgcc	gagtccatga	ctatagtata	1200
gcatggacgt	cacaccatcg	aaacgaagcc				1230

(2) INFORMATION FOR SEQ ID NO:999

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1784 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:999

ggactgtcgg	tttgcattctg	cccgaacggt	ctggaaaggc	atgaccgatg	gccacaagct	60
ccctgatggg	tgtacgggtg	caagcttcgt	gccacgcgta	gaggatatag	agtccttccc	120
ctttcgactc	gactacctgt	ttcttaaccc	cgtgttcgac	agtctgtgca	aggtgggcta	180
tgcaggacga	ttttccccga	ttctttgggc	gatacgtctg	agcgactcca	tctgcccgtg	240
gtggcctggg	cggcattacg	cccgatcgtc	tgccacagct	tcgtagagca	ggcttgccctc	300
ggcagctgca	ctcggctatg	tgtggttggg	cgaaggccgg	gaatgatgcg	ttggcaggaa	360
ttgtgtacgc	cggctgttat	ctgtgtcggg	gggtggatcc	gtcggccgga	gccggcatta	420
cggcagatgt	gcggacggcc	gaaacatggg	cgtgcgggct	tataccgtgg	ctacggctat	480
tacctttcag	ggagtggcag	ctatcggggg	gagcgtatgg	tggattcggc	ggacatcatc	540
ggcagatcga	atctttgtcg	gccgagatgg	agcctgccgt	cgccaagacg	gcctgatccg	600
cgactcggac	accctctctc	tcgtagtggg	ttgtttgaaa	aggttttccc	ctcgattcgg	660
atcgtatggg	atcccgtaact	cagagctcgg	ccgacagctc	cgcgggacaa	gcggatcggt	720
tcaatcttga	agataaacgg	ctttgtcccc	gatagacttc	atcacgccga	atcttcccga	780
agctgccacc	ttttgggctg	cgaaccggac	gatgagaccc	tgtagacttt	ctacgaagga	840
gcgggtgtcg	cctcgtcctc	aagggggggc	atgccggaga	atggtcgtaa	cggatcggat	900
cgtttacgac	ggtcgatgcg	aagctctccg	atcttacgcg	gcggtagcgg	gaagcatggc	960
acgggttggt	cccacagcac	gcttttgtag	ctgctttggc	cttggagcaa	gaacctttta	1020
cggctgccgg	atggcacagt	tatatgtcag	tcgactacgt	gagcgtgctt	cggggttggt	1080
gctatgcaca	aagacctgcc	ggtcgatccg	gtcgtcaggc	tgatgaggaa	atagatttgc	1140
agttcatcac	gcaccgtcag	cccgaacctgt	ccgaaccgaa	gaagcggagg	ccgtctgccg	1200
tataggtgtg	cgctgggtac	agcttggtat	aaggaggctt	cggacgaaga	gatgcttcac	1260
acggcttggt	ccgtaaggct	gtctgccgtc	accacggagc	actttttgtc	gtcaatgacc	1320
gtgcgaaata	gcccgtcagg	tggatgctga	cggcgtacac	ttgggcaaag	agatatggcg	1380
atagtcgaag	cgcgtcgcac	cctcggttcg	aataagatca	tggacgcaca	tgcaatacga	1440
tggaggatgt	gcgccgagca	tatgccgaag	agccgactac	gtgggtatag	gcccgtatcg	1500
ctatacggag	acgaagcagg	tttagctccc	gtcctcggac	tcgaaggcta	caaagccatc	1560
gccgcctgat	gcaagccgaa	ggcatccgac	tgccggcctt	tgccatcggg	gggataggga	1620
tgcagacatt	cccctcatte	gcgactgtgg	cataggaggt	attgcctgag	cggcagcctt	1680
atcaggaaaa	taaaaaagaa	ctaatecgat	gatctccttc	cgtatcgaac	gatcatcttt	1740
tgataaacag	gaaaaaatct	aatgaaacgt	tacaaattgc	cggc		1784

(2) INFORMATION FOR SEQ ID NO:1000

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1239 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1239

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1000

```
naggatcccc gaaattttct cgttttcccg gtcacaaaat ttggagcaca ccgttttgcc      60
aagaatgtgc tgacgctctg tcgcacggca aatatcgcaa actgaatccc aaactgcccc      120
agctggaaaa ggctatcgaa atggaggttt ggctctgaat ccgcccgtcg cgaacgagct      180
gacgcctcag gtcataccct cgacgaggaa cgcgacagag cctatcaggc gctgatgtcg      240
cgcgctgctt gtatgctttc gacgaggaca gccagctgcg caacgcggca gccaaatcga      300
agacgtggcc gctcgtctac gcaacgtgat ccgaatgaac tatacaagga gacggccgcg      360
atagagaatt tcctcaccga tctcaagggc gaaacattcg cccctcgtg acgaaactcg      420
gcgtgacggc actcgttgac aactggaaaa gaacaataag gccttcgccg actttcttct      480
ccgccgtctg gcaccgacca acgaggcaaa tatgacgtga aggcactccg tgccgagacg      540
accgcacatt ggtagccgtg gtgcgccgca tggactccat cgacgacagg agccgagccc      600
ggagatccgt gcgctcatcg agctctacaa ccgactctgg ccaatcgccg cgccctcttg      660
gctcgtcgcg ccagctacgg agaagcgcgg tggagaagcg tcgtgccgag atcgccgaga      720
tgctccgccc cctgccgccc ggatcgtgga ggagaagaag acggccgtct ttgccggtcg      780
cacctcggca cgggcaagaa ccgccactat ctcatcacat tcgtagccga gaaggcgacg      840
aggaggatcg ctggtaccgc atcaacgggg agcaactcgt cttgtgcccg aagacgaact      900
ccccaagccg aagaaaaaga agaaaccgcg agcagcacgg acactccatc cgagccgccc      960
gtcctgcccg atccatcgca ggaggcagca gtagcggcgg tggcgagcaa ggctctaccg     1020
gcggcggacc tgatcccccc gtgccgtcct gccggccgca gcagcacagg caaccgagat     1080
aaaagacaaa ggggctgtga ccaaatcatt ttttggcaca gcccctttat attcgaaaaa     1140
ttaggtgtta gccctgatta gcctttttct ctgnttcaaa ctatgtctaa agaaaagtct     1200
atgctaggac ttanccaaca accgcttttc ttacttgcg      1239
```

(2) INFORMATION FOR SEQ ID NO:1001

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 504 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1001

```
tctaataacg tctgtgtcgc attgataagt tctttaatct catcacaacc cgttctttga      60
agtcgctttc attaaatagt ttagattttg aaaatacaca ttacattgc tttgctgtgc      120
tgaggattta acagcgtaaa gatactttgc aattttatat catcttcac ggatgagcaa      180
gttttttagca tatctgtact acatcgctaa attcacgcaa gtaattctct gcagattctt      240
cttgcttacc ttcatatcac tctcaaaactg ttcggagtcg tttctatttg tattagtagc      300
```

tcaaattgtt	tgatgtat	ttt agcctttcca	ttaaaacgac	tagaatagca	tctagggtga	360
agggttttcc	tgtagaacgt	tttccataca	tatattgaga	cccgttgata	acttttgtcc	420
attcggaaat	attggaaaaa	gtttattcct	tcttccgaag	tcagtatac	tttagtctta	480
tccattagac	gagtttcagt	gttt				504

(2) INFORMATION FOR SEQ ID NO:1002

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1002

ggcgaatgtc	tctttggttg	gacgacaagc	agatagggat	agccgatagc	cgaattccaa	60
gggcgacaca	acgctgcgtt	tctctgcac	gctctcgagg	ttccaggcac	acatcatttg	120
ctgctcaaga	gcttgcttct	cgaaggcata	ccactgctac	ggatgtgcgc	gtagtcctca	180
agccgaagac	cgctcggatt	cgctcggtct	ctatcccaac	tatacgggca	aggagcggct	240
gagcccaagc	acatgatgag	cggcacattt	ctatcgggag	ggagtctctc	tccacgggca	300
agtatgtact	tacttcttat	cgggtaagca	gggataataa	gccgctgtga	cctataacca	360
gctgcgcgat	gccaaaggaa	atatactgct	catctgaacg	aaaaagaggc	ccttggttgg	420
atgccgcatg	aagatatgct	gtggtgattc	gcaaggaagg	aaatgcgaag	cgtttggtgg	480
ctttcgatcc	atggggaaag	gtgaaaaaac	cttggtgtcc	caatt		525

(2) INFORMATION FOR SEQ ID NO:1003

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1390 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1390

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1003

ggccgagtgt	tcgaacagat	ttcggactat	gattttgcaat	atctcgcgca	agggagttct	60
atttcacgac	tttgggtataa	atcttcgatg	gcctgttcgc	ttttgcttga	ccttctttga	120
ttggcagttg	tttcaagtat	cgttcaaatac	ccgtggatca	aggccttttt	ctttgatggg	180
tgccatgatt	tgggtagttc	ctctctattc	tccaattggg	tcaagtagtt	gtaggctgct	240
tgggtgttga	ttcagcaagt	cgtttctcaa	aacaggcaat	aaaatctcgt	atttttgata	300
ctccggcttg	aatgaagtcg	gattttgggc	ataggcctct	aatcttggtt	taggttgatt	360
cgtgtggtta	ttcccacatc	gtgtttcgac	catcatttac	ggcatattcg	aaagcggatc	420
ggatctgctc	atcgacttca	gacgatgaaa	actgtggata	ttcaagccga	ttttaatagc	480
tgcttttaat	catactcgcc	taatgttgta	atcatacttg	taatgtttgt	ggattagttc	540
aaatctatag	aaaattaagt	gtgtggcatg	caaaataata	tggaaaaagg	gtacaaagaa	600
gagggcatgc	cgaatcatag	cccggacatg	ccctcttaac	agtaaaggaa	atgtagagtg	660
gcagcagagg	tattatgtta	tagaacgata	ccctgccggt	tttgtgcttt	atccgcattt	720
ggaagctccg	caactgtgca	tagcaggcag	ccttccttga	taaaccaatg	tctcctgacc	780
gcaatcggag	atacctgtcc	cgacagggtg	gtgccattgg	ggaggtaacg	tttagggcgc	840
gctccacgcc	gttcttccat	gtattgatgg	attcatcggt	cacgacatgc	cctgtacgag	900
atgtaccacc	tgctcgatag	gcataccgta	ggcaagacgc	ccgagatgag	cttggcatag	960
ttccagtatt	cgggattgaa	ttgctatcca	agccttcgat	ggttaccctg	aaacctttct	1020
tgttgacagc	tgggaagtcg	agtgtcggtc	gccgttttcg	tccctgttct	tgattatctg	1080
ccgtgggtaa	cgctcttcgg	taccatgata	ccttcgctcg	catcggcata	ccggtgaaga	1140
tttcgtaagg	acgtccatcc	ttgaggccta	cgaaggatc	cacttttcac	gattgttttg	1200
gaagcgaacg	acctctgect	ccagccgcgc	ggacggggaga	taagcatgct	ctgtactgtg	1260
gtttggagag	ctgcggctcc	tctttcttgg	ctttcttctt	cggcttgta	gtgataagga	1320
cgcactgcgc	gaaccgtcgc	gatagacagt	acagcctttg	cagccgctct	tcattgcttc	1380
acatacaggg						1390

(2) INFORMATION FOR SEQ ID NO:1004

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 938 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...938

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1004

aggatccccg	aaattaggga	ttgtaacttc	tatatcgtga	cagttcctac	cccatagatc	60
acaatcacac	cccggactta	cggccacttt	tggcagccgc	gaaacaattg	gaaaggtaat	120
cggccaagga	gatgtgggtg	tgtacgaagt	acggtgtatc	ccggtgtaac	agaagacgaa	180
tgtattccga	ttatcggaaa	gtttcgggtc	tcaaatacaa	tgtggacttc	tttgccggat	240
acagtccgaa	cgaatcaatc	cgggagataa	agttcacaca	gtagagaata	taaaaaagtg	300
acatccgggt	ctactccgga	aatagccgac	tatgtggata	gaagtataat	accgtgttgg	360
tcaatggcac	acacaaaagca	tcttcataaa	aattgcagag	gcttcaaaaa	tcatagaaaa	420
cgcccaacga	gatgtaaaca	tgcatttatg	aacgaaatcg	cgaagatttt	caatgcaatg	480
gacattgata	gcacgaagta	ttggaggctg	cagctacaaa	atggaacttc	ctacctttta	540
gccgggcttg	gtcgggtggc	attgtatagg	ggtagacccc	tattatctat	tcagcgagca	600
caggtatatg	gagtttatcc	tcgggtattg	atgtctggag	agggtgaat	gacagcatgg	660
gctcctatat	agcctcgcaa	accatcagca	aatgaataaa	gtaggcata	tggtgaaaga	720

tgcacgaatt	ctgatttagg	atttacattc	aaagagaatt	gtccggatat	ccgtaatacc	780
aaaggataga	cacgtacagc	accctgcaag	aatacacgaa	aaatattata	gtaacgatcc	840
ttgggcaa	at	cttctatcg	ctgagcaagt	atatggaata	aaattcacia	900
aaaggaaa	at	tcgatgccat	tattattgct	gggatcct		938

(2) INFORMATION FOR SEQ ID NO:1005

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 656 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...656

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1005

atttgtggcc	aacccgcttt	gtatcccaaa	caatcctcgt	tcttcggagt	gatcaagtgt	60
tcttttgtcg	gtgaggcaga	gaaaatcgca	gagctggagt	cgatgatgcg	cgcgactatg	120
gagacaaaatt	gaatatattc	cgctctttga	aacgctgctt	gagtgcttcc	cgccgaggt	180
gcagaagata	aaagcctatc	cgacctcttg	gacaagctgg	atttgtcacg	agaggaactt	240
gtttcgctcg	agacagctac	tgcgatgtgg	agatgatcca	actggccggc	ttggtgtggc	300
cggtggcgaat	gctcgggaag	ccgtcaaagc	ctgtgccgac	tatttacgac	gagcaacgag	360
gagaacggtg	tcgcccactt	ggtggacaag	taatccgaca	cgaatatgaa	gccgttcctt	420
tctccgtaga	agatgtcaat	atattgtgcc	gggtacgctc	atggagagcc	ttggtattcg	480
ctgcaccaag	tcgcgcgtgg	ctatgtcgag	gcaacgatgc	cggtggatat	tcgcactcgc	540
agcctatggg	tattttgcat	ggaggagcca	gcttggcttt	tgcagagacc	tggccggatt	600
cngtttccgt	ggcantctgc	aatnccgggg	agagataang	gtggggattg	canggt	656

(2) INFORMATION FOR SEQ ID NO:1006

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 619 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...619

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1006

aggtttgtac	agcctctcga	agcggcgatt	ctaataccgga	ttgttaaaac	actaatacca	60
acgacttcac	catgaaagtg	tacaagacaa	atgaggtgaa	aacatctcca	ttttgggtag	120
ctccggcgcc	ggaaaaacca	cccttgcgag	gcgatgctct	tcgaggggtgg	agtataaaaa	180
cgtagaggaa	gcatagtgc	ggcaatacgg	tctgcgacta	tttccccgta	gagaaggagt	240
atggaactct	gtattctcta	cggttttctc	tgtagagtgg	caggataaaa	agctaatttc	300
atcgactgcc	cgggagcgga	cgactttatc	ggcgggtaccg	tctggctctg	aacgtcacgg	360
actgtgccct	cgtagtagtg	aatgcgcagt	atgcgtggaa	gtagggctta	tcaatcaatt	420
ccgctatgtg	gagcagttgc	aaagcctgcc	atcttcacat	tcaaccagtt	ggatcaggac	480
aaggccgact	cgactctgct	gtatcacagc	ttcgggagcg	atatggctcc	aagatagtgc	540
cgtacagtat	cccgtaaaatg	cgggagcagg	gttcaatgcc	gtggctcgagt	gctgaagatg	600
aaaatgtatc	gctggaacc					619

(2) INFORMATION FOR SEQ ID NO:1007

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2208 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2208

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1007

aacatccaaa	agagcagggt	gccaaagctgg	cagagaccgc	cttcccactc	tttgccgatac	60
ttcccctgac	tcaataccaa	accttcgagg	tacccttcg	agcagtcgga	cgaccgacat	120
gacgccagac	ggagaaggtc	tctccggacg	tatgatcata	ccgtgcagct	tggagatggc	180
cagtcgcaga	ttggttgttt	gttctcttgc	atgtacatat	ccacatcctt	cagccggcgc	240
ataatagcga	ccgatgctcc	atgaccggat	aggaacagcc	atgagaattg	tctccttcgc	300
tggtaaagcc	catttgatcg	aagaaaagca	gtccgacaac	ttgggtgaag	aatgaagtat	360
tcgcgctcca	atttgcgtct	tcgctcgctt	cgaagatcgg	ttgtatgatg	cgtatcatat	420
aaggctctgtt	tcgattggac	tcaaagctaa	cgattgtcct	ctctccatgc	ataatcccat	480
cagaccgaaa	atgggcaaat	gattctgatt	ttgttctatc	gatacaaacc	atcggttgaa	540
atttacgcac	cggagtctct	ccgattgcgg	ctcgtaaaat	tggaaaaatc	gaacgagttt	600
tttctcgttt	tggcgcgaga	attttttact	tcccgaacaa	aatgaaaaaa	ttctcgaacc	660
acatcttttg	gccccatgga	tgatgttttc	cggttcgtaa	agagatggca	gaaaaaattg	720
ccgagcgaac	tggttgataat	tggattttgt	ttctaccttt	gcaatcgcaa	aagaacaatg	780
ggcattacca	gagtggccaa	atggggctga	ctgtaactca	gctggcttac	gcctcggtag	840
ttcgaatcca	tactgcccc	ctcttcactt	ttgtaaaaac	aacgttaagg	tcgcggaagt	900
agctcagtcg	ataagacatc	agccttccaa	gtgagggctc	cgggtttgag	ccccgtcttc	960
cgctcttatt	gaaatcaagg	cccggatggg	ggaatggtag	acacgaaggga	cttaaaatcc	1020
tttgcccata	tcggctgtgc	gggttcaagt	cccgtccgg	gtacatgggt	tcgttttctt	1080
ttctaccgaa	gttccatttc	gggatagact	gcggaagtag	ctcagttgta	gagcataacc	1140
ttgccaaagg	tagggctcgc	ggttcgagtc	ccgtctccgc	tcaacttcga	aagcgataag	1200
ggggcatcta	aaattacagg	tcttgaattc	cccaaagtcg	attcgtcttc	ttctttcttc	1260
acatcccccc	cacaacagag	atttttctat	ttgcctttgg	actgatgctt	ttgccattct	1320
cgttttgcag	agaatcctgc	acctgaacaa	tgcttggcga	aatcgtcggg	atgacacaca	1380

ttgcttttcca	cggtcttctct	atctgatcca	aaaacttctt	ttcaagcctt	tttctttag	1440
catcatggca	catacgactg	atgtttttta	ggatgggtgt	tttcgaatct	cttttaggtat	1500
tacttttgtt	ccattggatt	tggctcatta	agccgggaaa	aggagagaaa	gggacaaacg	1560
attttctcct	caaataccgt	taatagatca	tgaaggaaagc	tattncccga	aagaacagta	1620
tataaagctc	aacgggtatat	acagattgtc	attcattctg	ctatgcgcct	gctatgctct	1680
caggcagcta	tggcacaagg	cgtcagggtta	tcgggtatgt	gctcgaccgt	ggggaaaagc	1740
cgatcccgtt	cgccggagtc	aaaggcgtgg	tacggggaca	ggcgcatcga	cgaatctgaa	1800
aggatactac	gagttcggat	gaaggccacg	acggacagca	tcacgatcga	gttcagctcc	1860
atgggtacca	aggggtaagt	cgcagctttc	cgtctctgac	caaggacact	cgctgaatgt	1920
tcgttttgca	gaggccgaga	tggagctttc	gagcgtgacg	tacaggccac	aaaacgcaga	1980
ctcaacacga	tggagcgcgt	caatacccgg	accttcgtgt	caatgcaggg	cctacggggag	2040
gggttgaatc	gctcatcata	cctacgcagg	agtaacgcag	aacaatgaac	taagctcgca	2100
atactcgttc	gcggaggaag	ctacgatgag	aatatgggtct	atgtaaacgg	agtggagttt	2160
atcgcccgtc	gctggttcgc	tctgcacagc	aggaaggtct	gagctcgt		2208

(2) INFORMATION FOR SEQ ID NO:1008

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1013 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1013

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1008

gttcaggaaa	agaatatcac	cttccttacc	gatgccaaagt	tgcataaaaag	atcgtgcgca	60
agatttttga	catcgtccat	aagttgaatc	ttcctcttgc	caaagctata	cctttgtttt	120
gaagcggatt	tatcgcgacc	aacgcttcgc	catcatccca	agaatcgcaa	gaaggcgctg	180
aaggcagaca	ataaatgcga	acaatagccg	gacgattggt	tcgagagctc	aagcgtaatc	240
ttggaataat	tctctctacg	ccgaattgat	tgagaggttt	gaagccattc	tttccaaaaga	300
cgtaacagcc	cccaaaagat	ttattccatt	catgagccgg	aggtcaatgc	atcagcaaag	360
gcaaagagca	caagaagtac	gaattcggca	ataggtatcc	gtcatacgct	cggctacggg	420
tattatcctt	gaagcccgat	ctttcgaaat	gagtatgacg	ggcacacgat	agaagcttcg	480
ccggaacaag	tgaacgactc	acacacagaa	agatcaaaaat	accggccggg	gacagaggta	540
tcgaggccgg	aaagaagtta	acggaaccgc	gatttttaata	ccggataccc	caagcaatca	600
gacagcagac	atcagagggtg	caagaaacac	aaattatctg	caagcgagca	ggcatagaac	660
ccaccatcgg	acacttgaaa	tcagatatcg	tttaggctgc	aacttttaca	aaggattggc	720
cgggggatgct	ataaaaatact	gttggctgca	gctgcttata	acttcaaaaag	agccatgaaa	780
gctcttggga	ctttatcaaa	ataataagcc	agatgccatt	tgccaatggt	ttccgcttaa	840
agaggttttt	taaggggacga	ctatgtaaga	tacaccgtca	gaccgagaga	ccggattgct	900
ctgaaagaag	gcagtcgtaa	tctccgaaaa	aaatagagct	gtgcagaagg	gaaatcctcc	960
ctatgcacag	ctctattttt	cagcatatcc	aaactactag	tagtttcaga	aaa	1013

(2) INFORMATION FOR SEQ ID NO:1009

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 846 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...846

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1009

gctgattttc	caagatgata	ccgcactgtg	tttgtggaat	gtccccagac	aattacaggc	60
ttacgacgaa	ctgttatcgt	atttccggtt	ttcagtgat	gatggagtag	tccacttcac	120
gttgccgtgc	atatttcatt	ttttccatta	ccgggtgaata	tcgatatgat	ttttatcgaa	180
ggccatgaac	tccgaacatg	tcggctgtga	tgacagcccg	tcgagagatt	gaaaaacgat	240
cgtagcgtac	gacgccttcc	tgacaggtgc	aggagaccag	cgtaggccta	cggcttcatt	300
acaacatgct	aattatcagt	gcattatggc	caattaaagt	aaacgagaac	gaccttagaa	360
attttccctg	ttttgcgtct	tcaaaattcg	ttccccctt	gtttgggaag	ttcagactca	420
atagcagatc	gacgacctcg	atccccctgt	cgtatttgaa	gcatacttcc	ttataataga	480
aagaagacac	tgaagatggg	gatgatgtca	tttttcagta	cacatcgcc	tttctttatt	540
ttgtagagca	tggtttcgaa	tttgggaccg	gcttttgaaa	tcagatactc	taagaaacgt	600
ttcaaagaac	tatgttattc	gaatcgatta	ccccgtgcaa	tggtggctga	tagcaggtag	660
cctgctcttt	gtttttgaga	tttttaccgg	ggtttcttct	tggtttgttt	cgggatggga	720
gcttttgctg	ccatttaccg	gcggccttgg	ggttgtctat	tgtgtggcag	accgtttttt	780
ttatgtggct	tcgctgctct	cgctcttcc	gtccagacct	tttatgcaga	agaggcgcag	840
aaggct						846

(2) INFORMATION FOR SEQ ID NO:1010

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 558 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...558

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1010

tggaggactt	taacttcgat	gctcccaaaa	caaaggcttt	caaggctatt	ctgccgcatt	60
gaagggtggg	gaaaagaaag	tactctacgt	ccttcccggg	tgaataagaa	tgtgtacttg	120
tctgctcgca	acctgccgaa	tacgaattga	ttcttgccaa	tctgatcaat	acttacacag	180

tgttggcttc	caagaactcg	tgctgacaga	gcgttctggt	gccgttggtta	atgaactatt	240
taaagataag	gaggatttgg	tatatgggaa	tcatcattaa	gccgattatt	tcggaaagat	300
gacggctggt	acggaaaaga	tgtcggagcg	ttatggcttc	cgctttctcc	taacgcgaat	360
aaaatagaga	ttaagaaggc	tgtagaggct	attataatgt	gaaagtcgaa	gacgtgaaca	420
cgatgagata	tgacggtaag	ctaaaaccgt	ataccaagag	tggactgatt	cgcggtaaaa	480
agcttctttc	aaaaggcgat	tgtgacgctt	aagaaaggag	aaacgatcga	cttcttcaga	540
tatctaagaa	aaatggga					558

(2) INFORMATION FOR SEQ ID NO:1011

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 669 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...669

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1011

cgaggaaatg	aaagctcggc	cggcagcgtg	ggcaagatcc	gcgaatgtgc	gccttactgc	60
tcaaatactg	caagactacg	ggtatcccgt	catcgtcacg	gacacatcac	caaagaaggt	120
agcatagccg	gaccgaaggt	gctggagata	tagtggatac	ggtgcttctc	ttcgacgggg	180
ataagcatca	tctctacgga	tactccgagg	acagaagaac	cgctatggca	gtacttccga	240
gctgggatat	acgagatgcg	gcaggacggt	ctgcgtggcg	tggagaatcc	gagcaacatc	300
tcatcacacg	caatagggaa	gacctcagtg	gcatagccat	agcgtagcga	tggagggcat	360
tcgcccgata	ctcatcgaag	cgcaggcttt	ggcagctcgg	ccatttatgc	caatccgcag	420
cgttcggcca	cgggcttcga	tttcggcgga	tgaacatgct	cttagccgta	ctggagaaac	480
gtgccggctt	aagctcatat	agaaggatgt	gtttctgaac	attgccggag	gtatcaaaaa	540
gccgatccgg	ctacggatct	ggccgttatc	tcggcagtgc	tggcgtcggt	ctggacatcg	600
ttatcccgcc	ggccgtatgc	atgacgggcg	aagtcggctc	tccgganana	tacgtcccgt	660
gagccgcat						669

(2) INFORMATION FOR SEQ ID NO:1012

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 593 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...593

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1012

tcggtgatca gtttcatatt gcgggggaaag agtgtggagc cggccggacc tgtatgcgca	60
aaggagattc tatttcacga ctttggtata aatcttcgtg gcctgttccg cttttgcttg	120
accttctttg attggcagtt gtttcaatat cgttcaatat cccgtggatc aaggcctttt	180
tctttgatgg ttgccagatt tgggtatggt cctctctatt ctccaattgg gtcaagtagt	240
tgtagctgct tgggtgtttg attcagcaag tcgtttctca aaacaggcaa taaatctcgt	300
atttcttgat cctccggcct gaatgaagtc ggattttggg catggcctct aatgcttggt	360
ttaggttgat tcgtgtgggt attcccacat cggtttcgac caatcattta cggcatattc	420
gaaagcggat cggatctgct ctcgacttca gaacgatgaa aactgtggat attcaagccg	480
attttaatag tgcttttaat gcatactcgc ctaatgttgt aatcatactt gtaatgtttt	540
ggattagttg caaatctata gaaaattaag tgtgtggcat gcaaaatata tgg	593

(2) INFORMATION FOR SEQ ID NO:1013

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 713 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...713

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1013

ttttcttcgt aactttcttg tcacttggca tcgagggcgt tcgccgatga gctgcgcagc	60
ttggcattgt cgaaaaacga atccgctaca gccggctcga attcagccac ggattttggca	120
tgcaattcgg caatagcctt tagctgtcgg gggtagcttt ccacatccct ttgcgtgcgg	180
tctccatcat tacggcgtga attcctgcaa agcggcaggg ttgttttcgc ggaaaaattc	240
gtggagccga gattcttctc atccttcaca taagttagcgt agatgtcatc ccacattcct	300
tgctgatggc cgaaggcttc atgacattcc agccgtagggt attcggatag tttcggcaat	360
gccgttggca gcattctgtc cctctttgag ctctcttggga tataagtagg attgaggatc	420
gtggttctgg cttcgacgcc gtggtttggt tcagctcttg cacgcgcgtc ttgtggcgat	480
tgcgacaggtc ttgaagtatg cttccggatc tttgcccgtc acttggcgga cagagagcgg	540
aggcctccca tgaattcata gacgtggctc aggctcaagg ctccccacta ttgctttggc	600
caggttgtac cacggcatca cattctgcaa gctgcttgaa cataccttgc tggaaatctc	660
ccagcgacct tgcataccgt agatgcccc aatgtgaggt aacatctgca tct	713

(2) INFORMATION FOR SEQ ID NO:1014

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 508 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...508

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1014

ggctcttcgc	gagctggccg	acttcctgat	cgacatccat	tctcagcaca	aaatctcctg	60
ctcggcgaca	gtttgtttca	gctcaatgtg	ctggatgcta	tagcggaaaa	cccgaacttat	120
atgccacta	cagcaaagct	taccggggta	tgccgaaaga	aaacaaaagt	tggaagacct	180
tcgtaaggca	gccgctcgac	agcgtcggag	tatgactatt	ggcagtttcg	ttttgagcag	240
ttggaaaggc	cggctctcga	tcggggagaag	aagctcgttt	gcaagaagaa	caggatatgct	300
gacgcatgcc	ttggacatta	aaagagagct	ggggcattcc	tatgccttct	ctccgacgat	360
gagagaggac	tactgtcggg	tctgaacaaa	gtgaagatgc	tttggccacc	atagagagct	420
attatcccg	ctcggcttct	ttcggcagcg	agtacgcgat	gttcgaatag	agttggctga	480
tattgcatcg	atttgggcgg	cgttcgga				508

(2) INFORMATION FOR SEQ ID NO:1015

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 655 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...655

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1015

ccttgatctc	aacatcatcg	aggttgatcc	agaagaagtc	cgtacagcca	agtgacggaa	60
ggcaacatac	ttagtacccg	caggcaactg	taccgtcttt	gataccaggt	gccctgaaca	120
cgagtgcac	gaatggcttc	cgggtgcctaa	caactgtctt	ggccgtcagc	acttcttcca	180
acaaagcggt	ggcgaattgg	aagcgtcggt	acccgtagaa	gatgcataca	cggcatagtg	240
ctctgtgcat	aattggcatc	ttgtgcacat	acccagaaaag	taagcgttcc	tccgtaggaa	300
gagaaagctc	cgggtgtaacc	agatagttat	cagggttctg	aggccttcaa	agttgatata	360
agaagccgaa	gagacacaga	ttgcactggt	gtacctgcaa	aagaggagcc	tccgggagga	420
gggggtcgtc	tccaattgtt	gcgtcaccgt	ctgcatcgat	cgtcttccat	gaggcaggaa	480
taccattttc	aattgattcg	aaagtgttgt	tgttcccggg	ttcggattcg	gggtaccata	540
ggtgcatccc	acttgagcgt	tactttcttg	ccgactgcac	taccggtcgg	ttctgtcagg	600
agcaaattca	ttggatcctt	ctaccgtaac	gtctttaata	ccttcggaga	tacgc	655

(2) INFORMATION FOR SEQ ID NO:1016

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 521 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...521

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1016

tttgcttttc	cgtgtgaacg	tttctttttc	gaccggaaaa	agttccacct	ttcaatcacc	60
gtcaaaccct	tccgtaccga	ttcttcgaaa	gaaatggatg	ggaagaattt	ttcctcaaac	120
cgggattggg	ataagggccg	atcggctgct	ggcatctcta	tagtaagcga	acacttgacc	180
atacgaatac	atacctgacc	tctaagagca	tcacgtgggt	gaaagattct	tctctgcctg	240
ccgagttgct	ttcccatgcg	taaccgtgtg	gatggtcatt	ggctgtacct	ctgctgagaa	300
atgagtaact	ccgcttatgt	ttccgttata	ggaccataca	gctcttctcc	gttgggttga	360
tcggcatttt	cacgtgtgta	tacagtcgcg	ccgcatatcg	ttgcgggttg	ttggcaaaga	420
aggcgtccca	actgctccat	aattaggatc	gccatagtaa	ggccctacca	actcgggggt	480
tgcatagctc	catagatgct	tccccacgtc	cagncgtatg	t		521

(2) INFORMATION FOR SEQ ID NO:1017

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 711 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...711

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1017

ttgacggcaa	acatgccgta	gctctcgca	tagttcttcg	tgatccagaa	gcatactgct	60
tggccactcc	gtatggcgat	cgggggtaaa	acggagtgtc	tcccgttggg	gcacttcctg	120
caccttgccg	aacagctcgg	atgtagagct	tgatagatcc	gtgtttcctt	ctccaatccg	180

agtattcgca	ccgcttcaag	aggcgaagcg	tacccacggc	atcggcttct	gccgtgtact	240
ccggacgtcg	aacgacacct	tgacgtggct	ttgagcggcc	agattgtata	tttcgagggg	300
cgagtgggtct	gaatgatgcg	taccaaagag	gagctgtccg	tcagtccccg	tagtgcagat	360
tgatcagccg	ctcgcgcttc	atgtcccgc	ccattcgtcg	agatagaggt	gttcgattcg	420
tcccgtattg	aacgaagacg	acggcgagg	ataccgtgca	cttcgtaccc	cttttctatc	480
agaaactcgg	gaggaaagag	ccgtccctgcc	ctgtaattcc	tgtgattaat	gccactttct	540
tttcataatc	ggaaagaccg	gattccctaat	cttgaccggc	tcaagcaata	atatgattcc	600
ctgcaaaagt	actcattcct	cccacgataa	tgcaggagct	ttgtttttcc	tccgaaatga	660
cagtagaggg	ctgcctttgc	tgagacccta	angggatccc	catcgagact	c	711

(2) INFORMATION FOR SEQ ID NO:1018

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1896 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1896

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1018

tcgagttgtc	gaagcattcg	atatgtttcg	gcgacgacgc	caagtgcaat	ccttttggat	60
cccgtggacg	atatgtaggg	cgcgttgctc	gggattgact	tctcggcacg	tttgagtttg	120
tcgagcttgt	attgagctac	gttcttccgg	ataattccag	cagtttccgt	ttgtctccac	180
gtcgggggat	cgtagtgtga	tgtctctctc	cgtttgccaa	ccggtgtcga	acggcaaaac	240
gatttgtgag	cgttgctttc	gaatctttgt	ctcagctctg	ttatcgccgc	tgcaagaagt	300
cttctttcga	ttcctctatc	tgttttctgt	actccaaggt	gtaacacgat	tgatccctcc	360
gtgctctatg	tgcattgtat	tgatataggc	cgggtgctcg	cttcgtcgta	agagaaaaca	420
tctacgttgt	ctatattacg	cgtacgaccg	tgtgcttggc	ttcgatcgc	tcaagaagct	480
ctattctctc	ttgcatactc	gtgcctcttc	gaagcgcagt	ccttcgctgt	atacctgcac	540
ctgtcgcgat	acatgcgtac	aagcctgtgc	aagttgcctc	ggagcagacg	cgtatttccg	600
atacattgct	ttcgtaactc	ttcgaagttt	gattgccatg	caggggcctt	tgcatttctt	660
gatgtgatac	tgcaggcaga	cgcggtcctg	ccttgctcga	ttttctcctc	tctcagatcc	720
agtttgcagg	tacngtcgga	tagatctctt	gtcacaaggc	ggagcatccc	tttggcaatg	780
agtggcccg	ataggggccc	aagtattcgg	atccgctcct	tttgatgtcc	cgttggcgaa	840
tatacgtggg	aaagggttccc	gtttgatcac	tatgctgggg	tagtcttccc	atctttgagg	900
aggacattat	accgagggtg	atactctttg	acagtgagtt	ttcgagcagc	agggcatccc	960
cttcgctgtc	cacaactatg	atltgatgct	cctgatctgt	ctgaccagta	tgcgggtttt	1020
cctgtctgct	gctccttgta	aaaatacgaa	ctgaccctgc	gccgaagggt	tttggcctgc	1080
ctacatagat	taccttccca	tcttcacgca	agtactggta	gcaaccggtt	tttccggcag	1140
ggtggggagg	atgatgttca	gttcgtcggg	ggtcataatt	ggttcgatat	tttgtttcac	1200
gtgaaacggt	atcttccgca	gagtagagaa	ggatgcttac	gtcgtgggga	gagactcccg	1260
gtatttcgaga	tgtctcgcga	tggtttccgg	ccgatgctc	gtcagttttt	ggcgtgcttc	1320
ggtgagaggg	actgcatctg	catataatct	acatgctgcg	gaagtcggat	acttcgagtc	1380
tgttgatctt	gtcggccaag	gctctttctc	ttttgatata	gcgtcgtatt	tgatcaggat	1440
ctctgcagct	tccacgattt	cctctcgtct	gatgccggga	tctcttccac	gattcttttg	1500
agagagggca	ccatcgaaac	acttcattca	tccctatttg	aggacgggag	agcagggtcgt	1560
acagtttggt	ccttgcttga	gaggaagggt	gccggccgac	tccagatgcg	ggttgataga	1620
tccggtttga	gggaaaactt	gtgcgtaaag	tcgatcagct	tatcgcaaat	acttgcctttt	1680

ctcggagcaa ttcgctgcgt ctgctgtctg ccagccgacg gcttccgcct tcggtgtgag	1740
cctcatgtcg gcacgtcct gacgagcaag atgcgatatt cggctcggga tgtaaacaatg	1800
cggtagggct cgtcacgccc ttgtcttcac caagtcacg atcagtagcc tatgtaagcc	1860
tctcccgtcc gagtgtgaac tcgctgcgca tggcat	1896

(2) INFORMATION FOR SEQ ID NO:1019

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 412 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...412

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1019

gggcattacc tgctggcagg aaccatacac gtcgcagtta ccgtaataac accgaaagca	60
cctacggaag atataatcat attgtatcgg gcctgactga tggctttgtc aaccttaggc	120
gcgcatcgtt gaaccacatc tgctccaggg aggaacgtag aaataggatt cgccgaagaa	180
tttcaacttt ttgtttcttt ttcttccaga aagaattctg ctatacctgt cgtgtacgct	240
gtaaatagtt gatcgtacct gtgttcggag aatcgacatc cacggaataa ccggtatcgg	300
acattgtgaa ttcaggatat aaccatcctg aggacattaa ccaaccttgt ctcccgtcgt	360
agtagaggca taataactgc tgtatgcccg gaaaccagat agtattctcc gg	412

(2) INFORMATION FOR SEQ ID NO:1020

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 547 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...547

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1020

ggcttgccag tcgtcatcgc actgaatatg ttcgatgagt ttcgagaaaaa ggcgacacct	60
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ttgactatcc	tgccctgtcc	gccatgctcg	gtatccctcg	gttccgacgg	tgggacgaac	120
gggacaaggc	ctgccggaac	ttttcgaacg	cttatctcca	ttcatgaagg	acgaaacaaa	180
atcatacgtc	ccattctatc	aactatggca	gcacataga	accggccgta	gaagctctga	240
ctgagaaata	aacaatcagc	tctctctacc	ctattctctt	ccggcacgct	atatgcagtc	300
aagctgctgg	aaggcgataa	ggagatgaat	cgcttcgtag	gcgacagccc	aaaggtcttt	360
tcatcctttc	ggcccgggac	ttcgctctac	ggagatcgac	gaacatctga	cagtggcgag	420
agatgccgaa	agcattatca	cgatcagcga	tatggattca	tcgcaggagc	cctcaaagaa	480
acataccgga	cagctacaaa	cagctcaaga	ccctgaccga	tagatcgatc	atatcgtcac	540
catcgcg						547

(2) INFORMATION FOR SEQ ID NO:1021

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 590 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...590

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1021

ggcaaaatca	ggataatcga	cgctttcgga	agagtggcat	ccgaagtctt	tgtcgtgatg	60
ccttgctctg	caagccatgc	ctttacgcgt	tctttcaatc	atatccggcg	tggtcgctac	120
aaataccgat	tgtttccatt	gtctgagtgt	agtttgtaaa	tacagattgc	ccgaaagcta	180
tattccgatt	tggaagcgct	ttcgggcatc	ccgtggttgg	ttatcagtgg	agtattttca	240
acactgttcg	tacacattct	ctgccgtaaa	gccgagtttc	tcgtccagca	cctttaggga	300
gcggagaatc	cgaaagagtt	caatccccag	acggcacccg	tttaccacac	aggccttcca	360
ggttgacggg	caatccggct	gtcaggccga	aagcctgata	ccgatgggaa	gcacttcctc	420
ctgatactcg	gcactctgcg	acggaaaagt	ccttcggaag	gtaccgacac	gatacgaagt	480
tttacaccgc	tttgcgcgag	agctctgcac	cctcgaccaa	tgtggacacc	tcagatccgt	540
ggccaggaga	actacttcga	tattctgatc	cgtattgacg	atataagccc		590

(2) INFORMATION FOR SEQ ID NO:1022

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 555 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...555

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1022

gaaacttact	tggccaactg	tcgcatagct	aaagacaata	tcgctgtaaa	tctgtagcag	60
atcagatcaa	aatgctgacc	aaagagcaaa	aagaagagtg	aaaaaattcc	tctaaacatc	120
tttttccctt	atttcgtttt	caggagcgat	attatccgaa	tcggaatagg	gttactccaa	180
taggcaaggc	tgtccggtat	aaaaacttcg	gcagcctttc	tttttttaggc	aagaggagct	240
aaggaaatag	ttggtttctg	gaccaaagat	ccggtatcta	attattgctg	tccgtgaact	300
tggagggtcgt	gcgtgtcagc	gaatatcttt	cattggaatt	tgtggcctga	aaatagagat	360
tcgcctccta	taccaactcg	tttcgacaaa	gatgcagtga	aaaggaaatg	gatcggcatg	420
gttctgtatc	gatagggtaa	atatccgcta	tctttggtct	aatgatgata	gccacaaacc	480
aaggatacag	gagttcggcg	actacctcgg	caggtatttc	cacactataa	agtccagaaa	540
taccctcatg	cagct					555

(2) INFORMATION FOR SEQ ID NO:1023

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 977 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...977

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1023

aaggcgggta	cgaagaactt	gaccgggggta	gaactttttt	acccgacggg	cccgcctctt	60
ggatcggttc	ggcttcgtgt	atggcggcgc	cgtgcatcgt	cgatggagct	ttttctgacg	120
gacagtctct	tgctgctcgt	caaagctagg	gacgcttggt	tttcggatcg	gatgtgaatc	180
tctttcgtcc	cgctcttcgg	cgggatttcg	tataaacctc	taaaccaatg	aaacgatgaa	240
aagaaatgga	tcgatgcgct	gtgggtgatg	ggagtattgc	tcattggccgg	gtttgtttat	300
ctgcttgtaa	tcgggagctg	gacgtgcaga	cggtttttcc	gttgaagtaa	gcacgatgcc	360
ggttcccaaa	caaatcaaac	agggcgaaac	cgggaagtgc	gctgttcctt	cgtttcggaa	420
ggcgattttt	ccggaacgtg	catacaatgc	gattttttca	aacggagggg	aaagggtgtt	480
tgcggtatcg	cgcggggttg	ctctcaaacc	caatgactgt	tatccgggtg	gtaaggggagc	540
ttccgcctct	actataacct	gcaaagcaaa	gagcggcagt	cgctcgaatc	gtcttcgagg	600
acaatcatgg	acaatcgcaa	acgatcgttc	tggatttaat	cacaaagaat	cggacgagga	660
taaagagcga	gaagccgggt	accgcactga	cggctccaat	aattcctttt	ttgttcttaa	720
tcaagagaag	gcgcgcgtcc	agaggatagg	cgctttccgt	tttccggaaa	agcgtaaatac	780
aggaaccgga	ttgcacctta	taatcttcca	tccggagctg	cttctccttc	attattctcc	840
attgggaaac	gttatttcga	acgttacttc	atcatattcg	taaatgccgt	ggatggaatt	900
acatatcagg	cttcgggtgc	attacgggac	ctccgaaacc	gaaaagataa	aacagatgct	960
tgacaggtat	cttgctt					977

(2) INFORMATION FOR SEQ ID NO:1024

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 563 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...563
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1024

gccagaacgt tccatccggg gatgaaacac gtatggctgt gccatctgac aaggacaaca	60
accaccccga cctgtgctgg aaatccatcg aatatcgctg ttcagtgagg ggattcgtgt	120
cggaaaagat atggaactca ccgtactaag cgtaatccc cctcatctct atatactctt	180
ttagaggact gacctaagag actccccctt ctgcacttc atatactgcg gcaaataagt	240
accctcccat aactgtgatt gttacaggag aagggtgacg gataagatta taggattcct	300
ttttcagcgt ctccatccga aaggatgaga ggccaggggc aaagtgcaag ggggtggtat	360
tcgcccttca gtcctacggg agaagcattg cgatgtcatg aacgatctga atgctgttgc	420
gagcttcgtc caaaccgaaa cttcaccggc caaaatccgc cgataactct cggtgtgcaa	480
cttcgtaaaa ctttactga actcgaatga ttgcgcgtcg attctatcga cgaaagggtcc	540
ttctctcctg tacgcattct cgg	563

(2) INFORMATION FOR SEQ ID NO:1025

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 580 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...580
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1025

gaatctttct atctttaact caataagaat cagattggaa caatgactag atgcagtggg	60
agcgattgct ctccgacaaa aggggtgggca tggagcacac caccaaccga aacaatcggc	120
tcagccatgg gagagaacgg acttcgacga gattatgacc gcattggtctt ttcttcacct	180
tttcgccgac tgcaaacaaag gcacaggat tcccccttgc aggcaatata ttcgtacaca	240
atcgtttacg cacagtctcg aagtgagctg tgtgggacgc tgcctcggca ataaatcaca	300

cgcggaactga	aagcgcggtg	tggcgaattg	ccatggggagt	cggggccatc	agtgccatcg	360
tgtcggctgc	ctgtctggct	cacgacatgg	gcatacctcct	ttcgggtcaca	gcggcgagcg	420
tgccatttcg	gcttatttcc	ggaaggaaaag	ggtaggggtat	gggaggacgc	agtccgcaag	480
gaaggagggtc	ctgggaagac	ttcctgcact	tcgaaggcaa	tgcaaacgct	ttccgtctgt	540
gacgcatcag	ttcgaagccg	tcgaaagagc	ttgccttacg			580

(2) INFORMATION FOR SEQ ID NO:1026

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 576 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...576

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1026

ggcaagagcg	aataagaggc	aatcacctct	atattattccg	atgtattgaa	caaaaacttt	60
ctattttctta	tgattttctg	ttacggagag	taccgatcgt	tctctcaaag	gcttggttgt	120
gatctcatca	agacccaatt	cgtcaaggcc	ttttcggcca	aaccgttggtg	ataatcgatc	180
agatcttcca	cgatcgacga	atccccagac	gattataaat	acctgtcaca	gctcggatct	240
tttctcacac	tgcacatccg	gcatacaaaag	ggattctctg	aggagattca	attctctccc	300
tgagccatct	caagggtctt	gatcagaagc	atcgtctttt	tatacaagct	atatcatcgc	360
cgattttctt	gccgaggata	atgggatcgc	caatacatcg	aggaggctcg	cctccaattg	420
gaaagacaag	ccgatatgta	tccgtagcga	tagagaatat	ctgctttctc	aatatccgct	480
cctccggcta	agcccccatc	ttaaggctgt	agccaagaga	actgctgtct	tcaaacgaac	540
atcttcaggt	actcgtcctc	ggcaacaaaag	tcccgc			576

(2) INFORMATION FOR SEQ ID NO:1027

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 566 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1027

gtcttcttga	taaaaatcac	aaaaaaaaaga	tttggccgac	atttgaaagg	attgtttttt	60
ggaaaaagta	caaactaatg	aggttattcc	aattattccg	atgacaccaa	gttcccagg	120
atacctaata	acattgcttg	cattcgtatg	aagagaagca	ggaagataag	aagcgatctg	180
aaagagtgc	gcgagaataa	ttgaaagaat	aatttctaag	gttcaatagt	taattataga	240
aaggggattt	attattttta	tagattttat	attgttgat	ttgttgctgt	aagggatgca	300
aatattttata	ataatagctt	ttttatagca	tgatagtgtt	cctattaaag	ctgcgcagtt	360
gacccctcga	ttcgccattc	tggttttcgt	cctgaattgg	gacattactt	ttttgctcgt	420
ctcttccgag	tcagggtgga	cagttctacc	ttttcttcga	ttggggagg	gccatcttcc	480
gttcaagccc	aacggagcga	aacggaattc	ggatcgggtg	cttcctctcg	tggctattga	540
gatcacggga	tgatagacga	atccat				566

(2) INFORMATION FOR SEQ ID NO:1028

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1013 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1013

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1028

tcagggatcc	ggcagcgatc	ggaccgatcc	tcggatgtac	tcctctccaa	caaaagtaat	60
atatcccgt	ctaagccctc	ccatttcgct	cttgatagat	cgatacgatg	aaagagatgc	120
gtgcgcatgc	aaggagttgg	tgctcgctctc	cccgaagctt	atctccggat	agcaggggct	180
taagaaaagg	aaacggtgag	atcgtgaaag	atgaaacacg	aacaaaaaaa	cgccgggttg	240
cggttgtatt	ttctgaaaaa	gtggcggtgag	atcttttttc	ctgtggcgcg	ttaaattttta	300
cttcccgaac	caaaacgaaa	aaattctcgc	gccacgtttt	tggagcatgg	aatgagaaaa	360
ttttgggctg	taaactcccc	aacgatgaat	aagtgatctg	tgccgaaaaa	cttcctgtga	420
gcaggggggc	gaaagattgg	gtctccgcac	agagcgaata	agagaggggc	tgaaagccac	480
tgcggtatct	gcccctctct	ccttatgata	gtattcgtca	ggcgtctctt	tattcgagct	540
atgtgcgaca	gtgaagtgtc	agacgatagc	cgctacaatg	gttgctgctc	cgccggcaac	600
atttgctgct	ctcccgtcag	catgtttttc	agattcattg	cccggccgct	cgttcgtttt	660
ctccgacgag	tgccacgtat	ggaatgtggc	tgcatgtggc	tagctcatct	gtttcttgat	720
cttggcagg	tcgggtacag	ctctgtgcga	aggccttgct	ccctgagctt	ttggatcagc	780
gggacagggt	gtcggcatcc	tcttcgctga	aattgacaaa	gagcagctgc	gtacgggtcag	840
cttctcggca	gggaagagg	cgagctgc	catcacatca	taatacggtc	tgaccgaaa	900
gaaatgccca	caccggacat	tccctccaga	cgaatatgcc	ggtgaggttg	tcgtagcgac	960
caccgccggt	aatgctgccc	tctcggcgct	gagtgccttc	acttcgagaa	tgg	1013

(2) INFORMATION FOR SEQ ID NO:1029

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 796 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1029

tgc	atc	agg	g	taa	gaa	att	gcc	gag	caga	tca	acat	cct	cgg	tga	tga	gtg	tacc	cg	60				
tag	ctac	cac	g	tag	tct	tct	gga	agc	aga	att	gat	cgc	ttg	tga	tc	tc	agca	ag	120				
gct	tcg	acg	atg	tcg	att	g	caac	agc	cg	tcg	agc	gtc	gag	ctg	atg	ctc	agc	agaa	180				
taac	ggac	at	ctg	tcg	acg	g	aatt	cga	t	ctc	gag	gtt	cgg	act	at	ttt			240				
caag	caat	ga	tca	ata	cct	t	caag	cag	gtg	aac	tatt	ctc	agt	tca	aaa	ag	tgct	aatt	300				
acaa	ata	caa	taa	ag	att	g	gac	gt	tatt	c	tgg	ccg	aac	g	cata	aat	aaa	tta	agat	360			
tat	gtc	aaaa	caa	agc	ttt	t	cag	aaa	atat	atc	ga	ag	att	acca	atat	ca	cca	agg	caac	420			
ctg	ctct	ttt	g	cgt	gcc	acc	g	ggt	ggg	t	aat	gaag	ag	t	gg		cga	ggc	gatt	480			
gct	caag	tgg	gcg	tatt	cag	g	ggc	ga	ag	atg	taac	cct	gca	ggt	att	t	ggc	tac	ggagg	540			
gatt	ccc	acc	gat	gcc	gaag	g	ta	at	ctt	cat	ggg	ca	agg	ct	cc	ct	gcta	agt	ggg	agat	600		
cagt	tgg	ccg	gcc	gtt	ctt	t	ca	ac	g	ctt	at	ggc	ga	act	at	cg	ac	ggag	gc	cccc	acc	gg	660
aagg	aaa	aga	agt	gg	agat	c	ggc	gg	t	cg	t	cg	t	cg	ta	ag	cag	c	ctt	c			720
agag	ctg	atc	gct	acg	gtat	c	cg	c	gg	t	atc	gac	ct	ga	aca	ata	ctt	t	gg	gac	ggg	acag	780
aag	atc	ctt	t	ctt	ngg																	796	

(2) INFORMATION FOR SEQ ID NO:1030

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 970 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...970

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1030

agc	gtg	ggccc	gaat	gctccc	atc	aga	atac	cga	tga	tga	agg	gcc	gccg	cta	atcccc	ag	60		
ctt	gat	aggc	ata	ctg	acac	cgg	gcag	ata	ga	agggg	gaca	tgc	cgaaa	aca	tcccc	ag	120		
aca	agg	cctc	cga	acaa	agt	ggt	caa	agag	gat	tgt	ccaa	ctg	tttg	acc	tcat	caccca	180		
aa	at	ctc	ggc	cac	ag	tcta	cag	cctt	gcc	ttc	gcca	acg	acg	gtc	aggc	gg	tcg	cccaa	240
ctg	cag	cgaa	gat	ct	ctatc	cgg	cag	caat	tct	act	ccg	cc	ctg	tccac	ac	gat	gat	at	300

tgaccccata	caggttgagg	atcttcagca	tgccgaggcg	tacccgttga	gcttagggcg	360
agttattacc	agcctgcgtg	atacgagctg	ttgtccacac	tggtccagtc	tatatcggga	420
cggttccaat	ccttcatttc	ttcttgccga	agagtatttc	gagctgtgag	gtatcctctt	480
caccggagac	gcgaggatgt	gatcgccgaa	atagaggatc	atatcagagg	tagggatctg	540
actttaccgt	tgtgccagac	ccgtgtaatg	acgaaagggc	gcttgagcgg	agtgctactt	600
cgcgaacgct	tttgccatcc	aaagcaggat	tgcagattca	tactcggaga	agaaagcttt	660
gggagcctcg	gaatcgtctc	gttcctgacc	ttgggcatca	taactttcag	cagggccaaa	720
gcaataataa	caccccaacg	cccaaaggat	aggtaacggc	acaggccaga	cctttttcgc	780
ctattcggcc	gtggcatcgg	gattgatctg	atggagggtc	gtttgggctg	caccaaagca	840
ggggatttgg	tagtggcacc	ggccacgata	cccatcagat	tggcatggaa	atgccaaagga	900
tataataaag	gaggatgcac	aggagaaatg	tagtaggact	aatcccaagg	agataagatc	960
tgccaatgcc						970

(2) INFORMATION FOR SEQ ID NO:1031

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 817 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...817

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1031

gtcgtacaat	tcctgaaaat	agtcggaagc	atagtagata	ttgccccagg	gaagccaagc	60
cattctatat	cttctctgat	ggcatccacg	tactccactc	ctctttcacc	ggatttggtat	120
cgtcgaagcg	caggttgcag	acgccccgta	tcgctgagct	atcccgaagt	ctatgcagat	180
agctttggca	tggccgtatg	gagataagcc	gttgggttcc	ggaggggaaac	gtgtctggat	240
tcgacgtcat	tcttcccttc	ggacaggctc	gattccacaa	tttgttcgat	gaagtaagac	300
tcttcttttc	ctctatgccg	ctgttcttat	tttcgttcat	atcatccgtc	ttgcttgtcc	360
ttatttacat	tagtgaacaa	aggtaatgat	atgggacata	aaataatcac	ggggcaatcc	420
gctcaagcag	gagccaatgc	cagtttgtct	gtttgggtacc	ttgaatgatt	gtgtatgaca	480
acgaaaacggc	taaggacgat	tatgacggag	tgatcatcatg	cgcaaattac	tgcgttgctg	540
cgacattcgg	cttcagtcgc	gtacttgtaa	gttcgctcct	ttctacctag	tcttagtacc	600
ttgtacttta	cacattcttg	cacacccaaa	aggggctcga	caaaaccgaa	ttttgacaca	660
gccccaaacg	aatcagcgtt	caacggggaga	gacctttata	tccgcgcgct	aaatcatttt	720
tccttctttc	ggctagcttt	ctaaacagcc	ccttcttggtg	cataggcctg	ttcattctcc	780
tctcgatgaa	cctgggatcc	tgaatcacia	tagcggtt			817

(2) INFORMATION FOR SEQ ID NO:1032

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1137 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1137

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1032

tatcaattct	tcccgaatct	attcataact	tcacaagcca	atcgattttc	cctttttgca	60
acggcaagca	aacggtagt	tcatgagcca	ggcctgtccc	cgaatcagtt	cggctgtgat	120
ttgtttccca	ttgagtgtta	catatatcca	ttgccgaaag	tcaggtggca	tgccacggtc	180
tgttctctat	ccgataaata	tcctgcacca	gcagacagga	gctaattctt	ccccaaggct	240
ttttcccact	tgtcctacag	gcattttctt	ccaccctttg	gttaagggtta	gaggatggag	300
tcgcctcgaa	ggatattgtc	tggaaatcata	ccgaataccc	caccacttgc	cgaacatagg	360
gtttgcccca	tgacaagccg	tcgtgcgaaa	tcatacttcc	tctgatttgc	ctccttccaa	420
tgttaatttct	cgttcctccc	tccgacagaa	agccgtagt	tcttgccggc	ttccatgtcc	480
gtatatataa	agcacgcgga	gcagaaaccg	cttgccactt	catgcccgtt	atactcttga	540
gcccgtatag	tagtcccagc	agctatggcc	gtatatccga	gagctattgc	catatgcagg	600
ggatagcctt	gaggtcggcc	tgcgagtaca	aaatcgttct	gtcaaaaagc	aaagccagca	660
caagaaaaga	ctcaggcata	cttgcgagcat	tcggatacga	acccccgtct	tgcgaaatgtc	720
catattgagc	ggtgagcggt	ggtcaaaattg	ctcacctcct	ccaaaaattc	tccattcacc	780
ggaagaatac	ctccttgccg	gccatatccg	gacgaacaaa	cagataaagc	atgaatcacg	840
aaccgaaact	tcgcccgaag	gcaagagttc	aggaaaagga	gacgttccgt	accgtaaata	900
ccttctccat	acatatcgag	aaattcgccc	aggttcgag	cacttcggat	tcataaggca	960
atatggagcc	attgccttca	gaccgatgtt	cagcagataa	ttacccccac	gacacaccac	1020
tcgcaccaat	cttcgaactt	ctcgcgagct	ttgtcccgaa	tagagcctct	ctcctgcctg	1080
agcgatagcc	ccatgtctca	gggaacatag	atgccgccgt	ctgccaagat	ggcaatc	1137

(2) INFORMATION FOR SEQ ID NO:1033

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 960 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...960

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1033

acgcgagtta	ttacctctcc	gaagcaaggc	tgtacataat	cgaattgagt	gtaatacagc	60
agttgccaat	agctaagaag	tatttgcctt	tattagtgg	gctttcagtt	gagaagtagt	120
cagaagtgga	tcagcccatg	cggctctgat	ccatgcgctg	tatagtttgc	aaagctgact	180
ccggtattca	aatgacgtag	caacctgtat	aaggggcttt	gagatagttg	tacacgtcgg	240

tataacatgc	tcttggttgt	agtagtactg	cataccgtat	ttaatggttg	gctgcctacc	300
tgggaattcc	agctataatc	tgcacctgca	atcaagagaa	cttctccaaa	taactcttat	360
ctggcatagt	agccttttca	tacatcaata	cctatcaatg	atgttcgtca	gttcttcttg	420
ggaagaagca	gacatacgga	agtatacatt	tcagggaat	agtcgccatc	gactgcactg	480
taatacaagt	ggtaactttt	tttgttttct	ttcctttttc	tccgctaata	acgtcagtg	540
accaaccaaa	gccaagaaga	ccggagcagc	actagctgcc	aatccatctt	gtatttcttg	600
tgaataaatg	ccttgataga	ggcgtttgtc	gttcctattc	agcttcgtct	gtgtaatgca	660
catccagata	gaagcccttt	tgagcctcca	agtgaagcaa	ggcttgagag	cttctttgaa	720
ttttgcacct	gcaacacaag	catacgaacc	ggcgtattat	acaagtcgcc	atgatctgta	780
taaaatctct	attgaagagc	tgtttataag	ctgtttcgaa	ataagggcta	aaaaagcatc	840
atacaaacgt	tgtgtagcta	cttcatcagc	tccttgaaag	ctacttcaat	ttcgatgttg	900
tttctaacct	tcaattgggt	tgcaaccaca	tatactgaac	aggattaatg	gtaagagctg	

960

(2) INFORMATION FOR SEQ ID NO:1034

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 405 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...405
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1034

caaaagctta	gaaaggattt	cccccgata	aatatagtag	gataccgagt	ggctatctta	60
agggtaacga	tgatgaagtc	ctgattgaag	atattgctct	aaaaagcccc	atgtggtctt	120
tgtggccatg	gggtctccca	agcaagactg	ctgatggagc	gtatgcaaag	ggtacaccct	180
aacgctatct	atcaagattg	ggcggtagtt	tcgatgtata	tacggggcgc	cgtagagcgt	240
gctccgagtg	gtggattcgc	cacnatctgg	agtttgccca	tcgcctttat	caagaagccc	300
agtcgcatca	agcgtaaaga	tacatttaag	ttaccgattc	ctgttagagt	atttaaccca	360
atagnaatat	aaatttccat	tgaaaaaaaa	gtgatgtttt	ggtct		405

(2) INFORMATION FOR SEQ ID NO:1035

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 613 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...613

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1035

```
caggttttcc tccatgagaa gagtggcact ccgatcatgt tctcgactag cgtgtcgttt      60
acaatacgca gaatgagaag atcaatgggt ttatgcttgg cgtatgttcg agaaagctaa      120
ggatgggcgt tatcgtaga tgggcgaatt atccgatcgg ccaaacaggg gatgctcagt      180
actgttttcc ccgattgatc aaccagttga gtttctttct gatgggtgat ccgtccgtgc      240
gtatgatctt cctaccaca aagtgaatt gaccgcaatc aacgggcagg atccgaaggg      300
cagtatggaa ctattatgct caagtctttg gaacgggtag ctggaagggt aaggtaaccg      360
atgaaaaggg gacattcgac gagacattca gtgcaagggt ttcctgaccg tcttcgatgg      420
cagaaaagaa atgacagctt tgaagaggag ggaaacgatc tctctcttgn atattatgac      480
tattcctaag gatgtatgcc ggtattgccg aggtgaaaga cggactcttc gaaacttcgt      540
atcgtaccac aggatgtgaa ctattccgag cacgaaggcc ggatcaattt tatgcttata      600
acgagagcac aaa                                         613
```

(2) INFORMATION FOR SEQ ID NO:1036

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1036

```
ggacaaagct accggacgca tcatcacgga tctgatgtat aagcattgga cgagtgggtg      60
gagaccatac cacatccctt catcgcgaa cgcacggagg aatgatcacc accggcaaag      120
acatcatgga gggcgaacct tacgaggtcc gatgaaaccg tggtcgggta tcgaagattt      180
cagttggagc cctgacgaca gaacatagca tacgccaagc cgcaagaaaa cgggcatggc      240
atatttctgt ctaccaactc ggacatatat atctataatc tggcttccgg ccggcgacaca      300
acatttccga agggatgatg ggctacgaca cctatccgaa gttagccccg acggcaagag      360
cattgcatgg atcagcatgg agcgcgatgg attgaaagcg atctgaagcg tcttttcgtg      420
ggcggatctt gccacaggaa acgcacccat gtaaaccac attcgattac aatgtggata      480
tgatccaatg gcaccggaca gtaagggtat ctatttcctt gcctgtaagg agcagagaca      540
atctggggga gatcacgctt gaaaa                                         565
```

(2) INFORMATION FOR SEQ ID NO:1037

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 618 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...618

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1037

tttccgacct	tttgcaccca	tattccgcag	gtctttatcg	aaagaaagct	ttacactggt	60
tgccaactat	aagaggtagc	aaatcagtac	tttagaagca	ttacgagcac	tcccatcctg	120
tgagagtcg	agatcattgt	ttcttagcaa	aagtacactc	tgaccgacaa	cgtaaaaaga	180
tatagagcct	tagaaacctt	tgattaggct	tgatttccgg	catagcagga	gtggacgaag	240
ctatgcggtg	cgaatgacac	ttgtgcccc	ttaccaatcg	gcacaccact	cggctacgca	300
tactgcctc	ccgatgccaa	caaactcgaa	ccgccgaaaa	aagaatcggg	caccttcctc	360
ttcgacaaaa	acacgaacca	taaatggaca	aacatgggtc	gtgaatttcg	agaaactcga	420
gcctaaaaat	tattcttttg	gtcgcaaaaa	tttactttct	caaaccacaaa	gcaaaaatttt	480
cccgcgccac	tttttcagaa	ccacggatca	caatcttttg	gcaccacaaa	taaaactctg	540
gagccatcgg	tcctttttatc	tcagcaagga	tggtaaaaat	cgacccgata	caacaatgcc	600
ctaaaccttt	ttcggtctt					618

(2) INFORMATION FOR SEQ ID NO:1038

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 512 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1038

ctttgggcta	aaaagatcaa	aaggctggtc	gatttttgtc	tcgcattgat	tttttagcta	60
tttccctgcc	ttttatgctg	atcatagctt	tgatcatttc	ctgcaagacg	ggggggctgc	120
aatctttctc	caagaacgca	tcggtctgga	ggaaagcctt	tcattgctata	taagtttcgc	180
tcaatgaagg	tgaatgagaa	gccaacaatc	agcctcagct	attccagaaa	aatgattcga	240
ggctgcaagg	ttcggtcggt	tcctgagagc	ttctcacttg	gatgagttac	cccattctgg	300
aatatcatca	aaggcgatat	ggctatcgta	ggctacaggc	ctgaagggaa	tattacatct	360
gccaaataat	ggaaaagaat	cgggactacg	cctactgtac	gaaataaggc	cgggtctgtt	420
ttcctatgct	acgctgacaa	cgctatacgg	atacgatagc	aaaaatgctg	gtgcgtctgg	480
agatggattg	tatacttgca	aaaatcagtt	ct			512

(2) INFORMATION FOR SEQ ID NO:1039

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 930 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...930
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1039

attggatcga	tacgagtatc	ggtggcaata	tcggattcta	tatggcgaaa	atagtctgag	60
cggacagaaa	gattctcgca	catacgattt	tggcggcatt	atcaagttgc	cctaacgctt	120
ccctatggat	tccgtatcga	cagcgatttg	aatacaatac	gaactccggt	tacagcggag	180
gattcaagtc	tggacgatgg	ctttggaatg	cttcgctttc	atacagcttc	ctccgtgaca	240
aggccgtaca	ctgcgtgtca	atggctatga	catcctcggt	cagcgggtcaa	gtatagccgt	300
tctgcttcgg	ccatcaatat	agaagagagc	atgtccaata	cgacggacgc	tacgtgatgg	360
tggactttat	ctaccgattc	aacgccttca	gtgtgggtgga	tctcgcagcg	atcatcagcg	420
tggcaatatg	aatcgtccgg	gccacctttc	ggcgggtggca	gacgaccgtc	ctgatcagac	480
gccacctatc	gcaagagaca	aagtgtgtaa	gtgtttttat	aacgaaccga	tcgaggggcg	540
tgtcaaaaatt	tgattttgtc	gcagccctct	ttctttgtct	cttgacgtgg	ttaggcaacc	600
ggcttcatct	tggaggccct	actttattag	cttttcgaga	catagaagcg	aatcaggcta	660
agattgtatt	tattctgtac	agacacgaaa	aacagtcaat	tgacaatgaa	atcttcccgg	720
aaaatgccat	gcgacatctc	atctatcggt	ttaacagggt	cacacggaac	ctcccactcc	780
ccgacctgcc	atccgacaca	gagcagatag	catcttccat	caatagacca	tagatcctct	840
catgtgagac	catagtatcc	tctcatacga	gaccatagta	tctctcatgt	aagaccatag	900
tatcctctca	tgtaagacca	tagtatcctc				930

(2) INFORMATION FOR SEQ ID NO:1040

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 310 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature

(B) LOCATION 1...310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1040

gggcacgaat	gacacgggta	ttattcctga	ccagcatact	gcccgatgga	gtacttccga	60
taattgggaa	aatacggcat	cctttatctc	acccttgat	aaacgagcaa	tttacaggca	120
tcgcgctgtg	gcaaagcatg	tttggcattc	gttcttcggg	caatggatag	tcgtagtcgg	180
caatggaaat	atccgtgtcg	taatcatcgt	ggtatgatat	tttgcgcggc	aaaattagca	240
aatacatggc	cgaacatgct	cttttctgag	tgtactgatc	ccattcgaga	tgtaaaatc	300
ggatttctac						310

(2) INFORMATION FOR SEQ ID NO:1041

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 596 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1041

gaggaagaac	caatccctct	cggaaaacct	acactcaacg	aactgatggc	aaccacttgg	60
aaggaggaag	cgaatacatc	gaactataca	accctacgac	aaacctgtcg	ttccctctaa	120
attcgccata	ggcatactcc	gcaatggagc	tacaccacca	caactgcact	gccgactgta	180
gccgatacac	tctatcgggg	caatacatcg	tctttgccaa	gaagagtggg	ggagtcactg	240
acttcacccc	caagcgcaaa	atgttggtcac	gatgagcaac	ctgcctcagc	tggcaataag	300
ggatttacga	tcggactgtt	cgaagaaggc	cttgatcaac	ctctgaagaa	gtggtctatt	360
cacctaaaat	gctcggagaa	ggaaaatgta	acagacgagg	gggtatcact	ggagccgtat	420
ctccttcgag	actccggatt	cgattccgac	caactgggca	ggcggactcc	atcggcaggg	480
atatgctact	cggctacctn	aactnccaat	cctcaatgca	gatactcca	gtagggtac	540
caataacgaa	acagaagcaa	cggaaaagct	acctgncacg	gcagtatacc	gaagaa	596

(2) INFORMATION FOR SEQ ID NO:1042

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 546 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...546

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1042

acagtagatg	tttgctattc	ggagattttc	ttcaagaagt	tggatacagc	ctcaaaggac	60
gccctatcga	ctatcttata	gtcgatcaca	tggagccgac	catagtggct	cgataggcct	120
gctgcgccaa	cgctatccca	atatgcaatc	gtcggcaaca	agaagactca	tgggatgctc	180
gaaggctacc	accacatacc	gaaggacttc	tagaggtaaa	agaaggcgac	aaactctccc	240
tcggcaaaat	gagcttactt	tcattttcgc	tccgatggta	cactggccgg	aagtatgttc	300
acctacatgc	caacccaaca	ggtcttggtc	tctgccgatg	cttcggtagc	ttcggtagac	360
tcgacggaca	tatatcgcac	aaggatatgg	attctctttc	cgctgggagg	agatgtaccg	420
ctactacgcc	tgcattgtgg	gaagtacggc	agctttgtac	agaaagtact	caccaagttc	480
aaggaagcca	tctgcctggt	caatatatat	gctctacgca	cggcccgttt	ggacaccgga	540
cacttc						546

(2) INFORMATION FOR SEQ ID NO:1043

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2014 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2014

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1043

aagcgggtgc	gaaagctcga	tgatgcagct	tcctatcgtc	ggatggacgg	ctgatagcag	60
cgtattcgga	tctccccgat	gtaatcggta	tggtaggacga	cgagtgaatg	cctattgtga	120
tgaagaggag	tatgtatctg	ctctcgactg	tgcaacagnt	atctgtccaa	gtatccggag	180
gcttcctcgt	atcaactgct	gaaaagctct	cgggcttcgc	gcattttggc	ttctttcgtc	240
aagtggacta	ttccctccgg	ctgcatacac	gcctnccgaa	gagcatgcgg	atcgatcgcg	300
caatgtcggc	tccgtcctca	tcagtctgna	ctggctggat	atgatggctc	gcaagctgct	360
gatataaggc	aggaaggatc	tgcacttgta	tggaaaaggaa	cacctttttg	gaccggaaag	420
cattcggaca	cagggccggc	catatgaaaa	tggattcgat	ccgctgtaca	cttcgggac	480
tgcccaaggg	gtctatctgg	tgaaagcctc	ggcagagcag	tgtgtactcg	aaaagaccag	540
ccggtgcccc	aatacagtct	gctccatgta	tcggatctct	tcttcctcct	cagcaggcca	600
tgccgggtgt	gcagggtactc	gatgcgctga	cgggcaaccc	gtggaaggcg	catcgggtga	660
tgcttccatg	cgttattcta	tagaccatcg	gttcataccc	tttctcctac	ggatcgggat	720
ggtcggatcg	atctgcgaaa	agctacaatc	gcttcttccc	ctataccgac	ggtgaccgct	780
cgtacccggt	gtttctgcct	atacctacaa	acaggatcag	gtggatcttt	ccagaagaat	840
gagcgcaagt	atatcgtctc	cacggatcgc	gccatctatc	gtccgggcag	aaagtccatt	900
tcttcggcca	gtgcgaccgg	ataggttatg	cgtggaggac	gcacgcgcca	tcgggtggatc	960
ggaagttgaa	gtcgtgtctg	agatgctaac	tccaaggaga	tcggtcggct	gctatgccag	1020
gcagatgagt	gggacgtttc	tccggtagct	tcgacctccc	gacagggatc	ttgaatggct	1080
gttcggacta	cgagtgggag	gggatacata	tccctttagt	gtggaaggta	caagcggcct	1140

acattcgaag	tcggcctccg	gagtcccgac	gctgcaatgc	tatgggcgac	accctccgca	1200
tacgaggcga	agccaagacc	tttacggaat	cggatatgca	ggagctacgg	tgaactatcg	1260
gctgagcctg	acccctatac	gcgtcgggtg	tggggtagac	ctgtggccga	tagggtcgta	1320
cagccgggtga	ggcagtggta	gatgaatcgg	ggtacttcgt	catacctgtt	tcctgtctcg	1380
gccggaagga	cgggaagact	attcctactg	cctctacacg	catcggcgga	tgtgaccgcc	1440
cccgggtggcg	agacgcaggc	cgccgtactc	gaatacccg	gggaaaagaa	cccaagaggg	1500
tggacgtcga	agtgggtaat	acattcgtgc	caacgaagac	aactggcttg	ccacctctct	1560
gccggatcga	cattctccct	taccaatact	tccggacaga	cgggtggaggg	atccatccct	1620
acttcctgtg	cgatgccgac	aatgaacgta	tcggtcggct	ttatacgag	cttcagggtgt	1680
ggtgacgcct	gctccggccc	aatggggcaa	gttgcttcgg	gacagtaccg	attgcgtttt	1740
ggcgagagtg	gcggagagga	ttccactttg	ttacgaagga	cgtttatctc	ttccgtccga	1800
aagatcgta	gtttcgaatc	cctcccaagg	cctttggaca	tatgtggcgg	aggagaaata	1860
cgcagtcacc	gccctgccc	catcctggtc	ggtgctactc	ccaaggatgc	gatgctcagg	1920
agttgtatct	gttctacgga	cctgactcag	gcaggcncga	tcatcgaaag	gaagatgatc	1980
cgcttgccgg	ccgggtgaga	tcgtcgagaa	gtgc			2014

(2) INFORMATION FOR SEQ ID NO:1044

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 653 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...653

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1044

gcatggcttg	ttttgacctc	tctgcggcta	tggggggaga	ggctgaaacc	gacaatggct	60
gcgtagcggg	ctgatgcata	ccgatcatat	acattatagg	tgggtggata	taccgcgtcat	120
ggaggactgg	tggccgatgc	cttactcgct	ctattgtccg	tggcaaaatg	gataggagcg	180
accagtncaa	actctaaata	gccttacaaa	ccctgatgat	tacgcttgat	ttccggcata	240
gcagggtgga	cgaagctatg	ccggtgcgaa	tgacacttgt	gcccccttac	caatggcaca	300
ccactcggca	tacgcatact	cgcaccccga	tgccaacaaa	ctcaaccgcc	gaaaaaagga	360
atcgggcacc	ttcctcttcg	acaaaaacac	gaccataaat	ggacaaaaca	tggttcgtga	420
atttcgagaa	actcgagcct	aaaattattc	ttttggctcg	caaaaatttc	acttctcaaa	480
ccaaaagcaa	attttcccg	gccacgtttt	tcagaaccac	ggatcacaa	cttttggcac	540
acaaataaaa	ctctcggagc	catcggctct	tttatctcag	caaggatgta	aaattcgacc	600
gattacacat	gcctaaacct	ttttcgctag	gcattgtata	gagtcatgtt	ttc	653

(2) INFORMATION FOR SEQ ID NO:1045

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 758 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...758

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1045

ccacccatgg	gagagtagtg	agtgcattct	tgaacatctg	ttcgaaacca	ggaacttcag	60
gatagagagg	ttcactgaag	gatggaacgg	ataccgcctt	gtacggaccg	atggcattgt	120
tgaactgaac	gcggtagccg	atgtttactg	taccttacct	tggtcatcta	cccagggtac	180
acggaatgtg	aatacacatc	cggctctacg	atacgctcga	tgataccggt	cttttcgaac	240
tcgggtgttg	gttgtagact	tcttctacag	agagaagaac	ttccttcact	gcttgaggaa	300
ttcgctttcg	ccgggggtgct	tagcctccag	cattgtcata	attcctgggt	cttcatagag	360
aactctaaat	aatagtaaga	gattactccg	gcaaagtagc	taatgtgttt	ggaactttca	420
agccttttct	caaaaataaa	gttagtaaga	tccttgtagt	ccaaatcaca	aactaacctt	480
tccgaatatc	gctttttcag	tacataaatc	agtatccgaa	tacgtcgcca	aaagattaat	540
atattgactt	gattcaaagg	cagcatgcat	cgatgggtta	atggagggtg	tgtcggtatc	600
gaagcctcgc	caaaacgcat	accgaaacat	cctcaaagca	tagcctttaa	tctctatctc	660
attatatcca	aatgtgtctc	ggatgacgaa	cactcacggg	ccggccttgg	tttttgaggt	720
cggacccgat	ggatagggga	gctttatcat	cctcgaca			758

(2) INFORMATION FOR SEQ ID NO:1046

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 682 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...682

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1046

gcccttggac	tctccaggat	ccnccgaatg	ttctctgcc	cgcttgttc	tcattcgaca	60
cagagaccga	ctcgaaagat	gcacttnggg	ccaatatcta	tggcatagac	gccttttggn	120
gggggacgcc	acacggcccg	aatagacaaa	ttcccatccg	gaagtagtac	ttaacccaac	180
aaaaaacc	gaaataagca	atgaatatcg	ataattcttc	cacaacgatt	cagggaaaga	240
ccatctcgtc	agggcttgac	gcattaaaaa	cagctttcta	agtactttta	tagtggtaaa	300
gccccgttag	ttatgtatca	ttctctat	gaaagcctct	gcaggttccg	gacccacgga	360
tagagcgtaa	aaaaatttat	cctcttgatt	tttactgctg	atcgttttcc	tctctacact	420
ctcaggcaat	acctcttggt	agagattgaa	gattatgccg	aggaatacga	agaagaattg	480
aaaagtctat	cgaaatgctt	accggccatc	agcttatgca	taccatgcct	tctcatgatc	540
tctcaacagg	agcatcagct	ggtggatgta	gaagcctttg	aggggcttta	agcgatggat	600

tgaagcttta tcttcggcac ttcgggtaaa catattgatt gatggcaaga cgatgccggg	660
agtgaagaac tctctttcga ta	682

(2) INFORMATION FOR SEQ ID NO:1047

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 645 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...645
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1047

cagccagtgt tcccagttat ataaaaacaac cccagggatg cctttactaa cccctgaggt	60
tcttttaaat aacttggtcc attgccgatg ttcgtctatg ttcagtcacg cgttcgtcgt	120
tgaatcgggtg aaatcttttt acatggcgtg aaagaggcca agaagccaca gacaatccct	180
gggaagtgg ctataagatt ggccaatcct tcttcttacg aataaaacca taccctaccc	240
acagtcgcag ttgatacctg cgaccattgg ctgaagccaa tcacctttat gtccgagaga	300
ttggaaccaa tctgtggaat ataagaaaca tacatcgcca tagtgttgcc gtggcaatcc	360
aaccgagaac tgacaaaaat ttttcttgat tcttttacta ccatgttttag ttcttggtgt	420
tagcaaatgat agtattcgca attaatcaaa gtaggtattt aacaaagaaa aatatatgag	480
gtcgatgatt gtttaaacac tgtatgttgc gccttctctg atgctatttc tgtgccggct	540
agctctctga gggtgtacga gtgcagattc gattctcaaa tatccatctg attattgtta	600
cacttgatgaa aattttcatg gccgacatcc gaataaaaga atacc	645

(2) INFORMATION FOR SEQ ID NO:1048

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 749 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...749
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1048†

ggaaattacc	ctttaatctt	ttctattttag	gcaaacactc	aaaaaataat	tttatgtatt	60
tgtccataac	ggagaatatg	cttatggcca	agataccttc	ctactgtttc	aaggccaata	120
ggtaagaata	ttcgcaaagt	gcttcgtaaa	ttatgcggaa	acagcccaaa	tatttattgt	180
tctgtccaga	attggagaga	tgaatacaat	cctttatgta	ctaaatgaca	agatatatgt	240
ttacaagttg	cacaaatgaa	agaatacgag	ttgagcgatt	attttaaaca	cttcctcgtt	300
gaaattgtag	tatacctcaa	aggaggggat	tgttcgaggt	tgccattttt	gggactttat	360
atgtttttac	tctgcctcaa	aaaaaaaaaga	ataggtgggt	atggtgctgc	agtcgtatac	420
gaaagctaga	agttgaatac	ccgcaggaag	taacgaaaaa	atcaaaaaca	acacaaaaaa	480
acagaatcgg	gactagagcc	gggggcatag	ggaatgggta	ttttcccact	catgggggatt	540
cctgcgccaa	aagctatatc	tttgtaatga	accaatcagc	gtggaagggt	tgtaatgctt	600
gcaaccacga	gaaaaaatgc	taaaacatct	cttcttaaaa	gctcttcgac	agctattctc	660
caatggagtg	tgcaagccct	tctgtggaag	gaagttttac	aaattaaaag	cntaaagata	720
tgagctatct	attcaatccg	aatcggtgt				749

(2) INFORMATION FOR SEQ ID NO:1049

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 651 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...651

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1049

ggctccactt	cacaatccgg	ctaacctcaa	aggcgtcgta	gccatcgaga	gttgctcccc	60
ggtattcgtc	aggtgggtgt	attcgataca	gctttcttca	aaccatgccg	gaacatgtgt	120
accgatatgc	cttgccatat	gatatgtcaa	caagcatggg	gtacgtcgct	atggattcca	180
cggcaccagc	catcgcatgt	cagtgcctgt	gcttgtgaaa	tcttnggggt	tggactacga	240
caaaatcgca	taatcacggc	acatatcggc	aatggagctt	ccatcgctgc	aatcaaaacg	300
gcaaggcttt	ggacgtatca	ttggggatga	cacccgtaga	aggcttatga	tgggtacgcg	360
cagtggagac	gtagaccccc	gtgttcttac	ctcctgatgg	aagcagaagg	cctcgaagca	420
gcaggaatct	ctgaactgat	cataaaaaga	gcggtgtact	tggcgtaagc	ggtgtgtcct	480
ccgacatgcg	gaaatcgaag	atgccatcaa	gaatggcaac	gaaagagcta	ctctggccag	540
accatgtacg	actacaggat	caaaaaatat	gtaggagctt	atgccgctca	tgggaggagt	600
cgatgtgctc	gtattcaccg	gtggagtggg	tgaaaaccata	taccacgaga	g	651

(2) INFORMATION FOR SEQ ID NO:1050

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 377 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...377

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1050

```
gctgtgtcta ngtttggggn acccggtatac agctttctct atttctgcca aagatcaatt      60
atcgtcacgt tggtttggtc tatcagggat ttataaaaca aggactctac cccacgggtat      120
cgaaaacttt agagactttc caatcttgga gacgtttaag ctcgccatct tggattagga      180
aaaatgttgg caatgactga cattgaatga caaagctgct ttcccttcgc tatcgttcac      240
tgtgaccaag ggagtgtacg cgttgcatc tgccagaaat acaagtcctt gtcgcagaaa      300
tctcatatat ctgaaatcca ttgttgcaat gtcgttgata caggctcgct gttcttttac      360
caaagaaggt gaccatt
```

(2) INFORMATION FOR SEQ ID NO:1051

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 756 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1051

```
ggattttgtc tggttaacaac aaacacagca atgaacatta acaactacaa atcaaattgc      60
aggaggctct acagcagggt gtggagctga cccgtcggac ggacagcagg ccacgaacc      120
gcagcacctg ctcaaggccg ttatggacag ggcgaaagcc tgaccgattt cttttttgcc      180
aagatggggc tgaacagggc agtatcgcca cggctgtgga caaactgata gagaaactgc      240
cccattatcg ggtggcgaac cctatctgtc gcatgagacc aatcagggtgc tacagcagcg      300
gaggacgcag cgcaccggat gaaggacaaa tacgtctctt tgggcacatc gtgctggcta      360
ttctgactac gcgatgcgag gcgtccactc tgtcaaggat gccggagcca ccgaacagct      420
tctgcagtcg gccatcgaag acttcggaag gggcgcaacg tgaccagtca gagtgcggag      480
gaacagtaca tgcactggag aaatatgccg tcaatctctg tcagcgtgct cgcatggca      540
gttgatccc gtgatcggtc gcgatgacga gatcaggcga gtgctgcaat tctctctcga      600
cgcaccaaga acaatcctat cttatcggt gagccgggtg ggcaagacgg ccatagccga      660
gggcttggct tacaggatcg tgcgtgcgac gtgccggaga atctgcgcaa caagcagata      720
ttctctctcg acatggtgcc ttgatcgccg gagcca
```

(2) INFORMATION FOR SEQ ID NO:1052

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 424 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...424
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1052

ggcaacgaaa aattccgtgt aaacaaataa ttcgcctcga caaaaaatag gctatcataa	60
aaccattcaa aggagtacgt cctccgaaaag aactcgttaag caagtagcat ctcgccccta	120
cgacgtcctt aattcagaag aagctcgaaa gaagcgaagg gcaacgaaaa gtcgctctat	180
catattatcc gtccgggcatc gatttccctg taggaaaaga tgaacacgat gcggacgtgt	240
atgaaaagct gccgagaact tcagaatgtt ccaagaaaaa ggctggctcg tacagacaca	300
gaagaaaact actacgttta tgcccagacc atgaatggca aaagcagtac ggncttgctg	360
taggtgcata tgtagaggac tatatgaacg gctgatcaaa gaagcatgag ctggacacgc	420
cgcg	424

(2) INFORMATION FOR SEQ ID NO:1053

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 622 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...622
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1053

gacatgacta tctccgcaa cgtgtcttgc aactctttgg caatatagag gtcttgcgat	60
ttttcaagggt gttgcgacag atgaaaagcg actcataaca cctttatcag cctttcgcct	120
ttctcttctt gggactcttg aaaaatcttt gacattgggtt cttcatttgg acgttccgat	180
tcaacacact gctctttaat tgagagcggtt ttatttcgct ctcatttctt ttcatgggaa	240
taccctgtaa acaagttccc ggatggcaac aggatctacc ttgccgtttt ggtttctgtc	300
atacttactt aatttttatt gntatacaat tcaactgttca ttttttgccg gtatatattac	360
ctgcaaagat gaatacatcc actatctaag attgcccgat aatgggggtt taccagcagg	420
gctacatcct ttcgttcata cctttttgtg ggagatgttc attgatgtcc atcaatacaa	480

tcgttcgatt tatctgcttt cacacatttc cacgttcaag tgaaaagaat caaaggacgg	540
ttcttcgata taccctctcg cttatatcgc tcatcgaatc gtgatatctc gaagacacat	600
tcctncaccg acatattcga cg	622

(2) INFORMATION FOR SEQ ID NO:1054

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 464 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...464
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1054

gtaatagtgg ggcgcattcg gcaggatttg gctaattcca gcggtttggg ttttggtgcg	60
tatcggatca gatccggaaa ggggctgcac tcaacgcttt cagatagccg aatattctcat	120
cgccaaagga catttcgctc gctgacacgg tatcgctttg cgacatagcc tgaaaaggat	180
aaactccgaa agccaattta accctcctgc tttcgggggtt tgcttttgtc gtattataat	240
gttctttcca ataagaatcg atctaataaaa gatattgctg tccggtaaaa aatgagattc	300
tatcttgaat ttcttaactg cccaagtttt accgatagca atagaaaaag agaccattgc	360
acaataactc ttctatccct tcatattgat cagacagaca caagcattga ttcgacgaaa	420
gtaaggagtg cttcatgcag ttttgcgaa cctcaagtat ggga	464

(2) INFORMATION FOR SEQ ID NO:1055

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 847 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...847
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1055

ggttgttctc ctgtatccaa ttcttcgtca aaaactttga aagcctcaga catcctccga	60
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gattatagat	gagaatggga	taaaaactta	cgaactctcg	tgcggaactg	cagctcatag	120
tagtgtagta	aaagcaagaa	gtcttgtag	ggctaacacg	ttgccaatag	gagataaaaag	180
aagtggggcc	ttgagaaaaa	aagaatctgt	cggtagagat	atgtactgaa	atagagtgtg	240
acagtgtgag	gatagccatc	aaaagccctt	attaatcggg	atagtccagg	tcttttaggtc	300
ttataagatt	tattaattca	ttggagagaa	tcagatatag	cacgtattga	agtccgcttg	360
acttttttca	aaatctccta	tctcataata	tgaactcctc	taccattata	cccaaggatg	420
tatttatcgt	ctaattctat	tcctgagaat	agtctttaat	cgctttttta	taccatcctt	480
tcttagaata	gcatttcctc	taccatgata	cgcaggggcg	tatttatcgt	ctaattctat	540
gcctgagaat	agtctttaat	cgcttcttca	tatgatcctt	tctcaciaat	gcatttcctc	600
taccataata	cgcattggcg	aatttaccgt	ctaattcatt	gcctgagaat	agtctttaat	660
cgctttttta	taccatcctt	tcttagatat	gcatttcctc	taccatgata	cgcaggggcg	720
tatttatcgt	ctaattctat	gccttagaat	agtctttaat	cgcttcttca	tacgatcctt	780
tctccaatat	gcaactccta	taccattata	cccaagggtg	atttatcggc	taatctattg	840
cctggag						847

(2) INFORMATION FOR SEQ ID NO:1056

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 569 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...569

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1056

gcgaattatt	acaacgtcca	agttgttcgt	acgtgcagcc	acaacagcct	gaggtaataa	60
gtagtagcat	cgggattctt	tatcccatc	aggatctctg	tgctcgggtg	tagtcgcgat	120
tgaggatatt	ggccacggca	gcattgtgct	ctcgggtctta	ccgaaagccg	ctacagcctg	180
ggcataattg	ccctctgcag	atagagcaaa	ccaagagcct	cgcccaattc	gggcacattg	240
gcagcgagcc	gaaatactgc	ttagcctgct	ctacattacc	ctcggttaaga	gccatagtcc	300
aagggttcata	tcccgtttct	gcattgggct	tcacgcttgc	agcttttgga	accaagtccg	360
agcacccctcc	aaatcacccg	tgcgataacg	cacataccga	tattggtata	agcacgatag	420
tcacccggat	agatctgagt	accaccttgt	aaatatcttc	cttttgagca	ggagattcga	480
gcagagtaca	tatagagcag	ctcttcacgt	cagccggccg	ggctctggctg	cagacgttgt	540
ctgtatcgtc	tacctagatt	cgacattgg				569

(2) INFORMATION FOR SEQ ID NO:1057

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1057

cgacaacagc	cgactgcaca	tcacctatat	gaacgtcgcc	gtaccgtttt	gatgaagaag	60
tgccgcagct	ccttttctct	ctatgccgct	ccggtgctaa	gttcaagacg	gcttccagct	120
ctaagggtgtg	ggtgccggac	aacaagatca	ccagaaacac	ggtcgcgatc	tgaacctgaa	180
tcctatcgtc	ctcgaactcg	tgctcggtatc	aattacagt	ctttcaatct	ctatggttct	240
tataccttac	gcccctgttc	cgcagtggaa	aaggacctga	tacacgcatg	ttcgcacg	300
cttcggcctt	ggtttctaaa	aacgaaaaag	caatgaaacg	ttttttttga	ccaccgctat	360
actgctgtcc	tccgtgcttg	cctcttacgc	cgcagccttc	cttcggccgt	tcgcgatacg	420
gtgattcggtg	ccggggagaa	accattatga	tcaaggatgg	tgaggaccaa	tttcgaggta	480
attatacagg	gtccatgcct	tccggagata	cgatccgaaa	cgaaaagata	ttcagagggt	540
ctatcgcaat	ggtcgcagca	tcgaacaacg	ctttcggaat	actttgataa	tcggccgaca	600
gggataag						608

(2) INFORMATION FOR SEQ ID NO:1058

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1130 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1130

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1058

acggtcctgc	ttgagcatgt	attgcgctgt	tgcaaatgcc	gattgtacta	atgagagccg	60
acagataccg	aggatcctgc	tggcaaaagct	gctgatcctg	aatcgctctg	gctcatcgct	120
accgcccagt	atgagctgat	agtcctggga	gaaactatta	ccagcgggaa	gcgaccgata	180
tgatcgctca	gtcgttatat	tctttcttat	tccgacgcag	taccttgctg	ttccccggac	240
gaataaaaagg	agcagctcta	tcccatcgcc	gctttcatcc	cgataaagcc	cctgaacagg	300
gccatttctt	ctccatgtct	gacaaccata	ttgtccggta	cggaagatga	ctgcgacaga	360
aagagaggaa	atgcagcgca	tccagcagat	tatcttgccc	attccattgt	tccccaccag	420
acagttcact	ttgggcgaaa	acggcaatcg	gcagctgcga	tactcttaaa	attgacgata	480
tggagttctt	tatgatcatt	ctcgttgggg	taagatagag	ggtaggaggac	tgtctcgctt	540
tctgtcaaac	gaatacctac	ttccgtgata	cctgaaagag	tcggtacctc	atattgtgct	600
ttactcttat	cttataaaga	cccgaatagg	gaaaacggcg	gagatcggca	ggcgaaaccg	660
gttttgctgc	ttggcaaccc	cttttcgttc	cactgttgcg	gcttgtcggc	caaagtcaga	720
tccacagagt	ccgcaagatc	agacgctctc	ccactgaaac	ctcgtatgcc	aatgccaaat	780
cgcgtattca	taccgattgt	catggcggat	cagcagctcc	aagaatatg	agcagtatag	840

tccggtatga	ggatttcgta	gtcgcagcaca	tcgcgcttct	gcaccttcca	tgaggcacct	900
gacgatacag	tattcgctcg	tccttacngt	agtgcaagac	acaagccaag	catatcccca	960
atgcaaccag	aaaaaaactg	ttgcgccttc	ggacttgctt	tcgtaccggc	aagcacccat	1020
ctccctttat	cctttcttct	cttttcctgg	tcggctttct	gacgtggaag	tgctttgacg	1080
cgggtggtctg	cggcactggc	caccacacgt	ctggcttctt	tcatacgtcg		1130

(2) INFORMATION FOR SEQ ID NO:1059

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1373 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1373

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1059

agccataaac	tgcggccgta	tttcattatc	tttgttccat	aatcatggat	attatgaata	60
acgatctcca	atttactatg	gtagctaaga	ccctttatgg	ttggaggatg	tcttggctgc	120
cgaactaaca	gccttgggtg	ctgaggagta	accgtcggcc	ggcgtatggg	cagttttcga	180
ggagataaga	ggatgcctat	cttgctaata	tccggttgcg	tacagcactg	cgcataattga	240
aaccttaata	actttccatg	cgaagacgac	agatgaaatt	tatgaaaggc	tcagcttttc	300
gattggacga	ccgttatctc	atcggatcaa	actttctcca	ttgttccgtc	gtttattccg	360
attcgttcaa	gaacagtcag	tatataagtt	atgtaccaa	gatgctttgg	tggatttctt	420
cagtgatcgt	gagggcaaac	gccctctgtc	cggctctcca	atcccgaata	tttactgaac	480
atacatgtgt	gcacgaggaa	gtaaccctgt	cgtctgatag	ttcggggcga	agtctgcaca	540
gcgaggctat	cgtgtggccg	aaacgactgc	tcctctaaat	gaggtgttgc	tgccggatc	600
ttgctcaaa	cgggttgga	cggtagtacg	gatttgacga	tcctatgtgt	ggatccggaa	660
cgttcctgat	cgaagctgcc	ctgattcatg	caatattgct	cccggatatc	ataggcgagg	720
ctttgctttc	cagcgtgggc	ggatttcgat	ctcgatctat	atgatgagtt	gttccatgac	780
gacatgcgga	acgtgtattc	gatcatatca	tctacgggtc	cgatattttg	ccaaggccgt	840
ggctgcggcc	agaagtaacg	tggagcgagc	cggctcttgg	agtatatctc	tctgagtgtc	900
cttcccatgc	agcagcgtcc	gaagcctgaa	tcaaggctat	gctggtgatg	aatcctccct	960
atggagaacg	tatcaaagtg	aggacatgca	gcagttgtat	accatgatcg	gagagcgact	1020
caagcataat	atgcaggttg	ctctgcatgg	attctggctt	tcaagccgga	gcatttcata	1080
atatcggcct	tcgtcagttc	catcgagaaa	agttgatgaa	tggagcttgg	aatgtgagtt	1140
gcgaggttat	gaactctttt	agggacgacg	cgattctttg	ccgaaagaaa	aagtcgtcga	1200
gccgaaggag	aacaaggcgt	aggacgagaa	tcgaccgtcg	tgacgtttct	gccggaaggg	1260
aaaaacgctc	caacccatgg	atcgagaaaa	taagtctcct	tatcgttctc	ctcgtcctga	1320
taacctttca	gaacttccga	taaaaggaaa	aaagagcata	atgatgagca	gca	1373

(2) INFORMATION FOR SEQ ID NO:1060

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 770 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...770

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1060

gcattccact	gtacgggatt	gtggctggct	gtgatgatga	taccgccatg	gcaccacagc	60
ccgtgacggc	catttcggga	gtgggagtcg	tggccaaact	atatcgacca	catcgcatcc	120
cattcccatg	agagtgccga	aaacgacttc	ttgaccatga	gtccggacgg	gcgagcatcc	180
ctaccgacta	cgatacgggg	cgtttggttt	tagttaactt	tttgatgaaa	tgagcatagg	240
cagcttgaat	tgggctatgc	tgataggatt	taatccctca	tcggccatac	cgccatcgtg	300
cctcgtatgc	cggagattga	tttgatcaac	gtcatgatat	tgttgatgtt	agatgaatag	360
attcctaaga	ttagagggtcg	ggagggggtca	gtccgaaata	cgtattccac	ttccttgtaa	420
tatccgggtca	ggcctcgcca	aagagcgatt	ccggggccgat	tcggaaaggt	acgatcaggc	480
gcacgcgagc	ttattgccaa	gcatggtcac	ggggaaagcg	actccttcgc	agacgaacaa	540
tccagggttg	aaccgggtcg	acatttgatc	agttcgaagt	gaatatccca	tcgttgact	600
tatatatata	gcggaatacg	ctctcctgaa	aaccgccgaa	gtgagactgt	tgaagacata	660
gatggagtcc	ctctcacgat	tgaacagaaa	ccttccatcc	tgacgttgat	cttgggtctg	720
ttcagcacgg	gaggcctttc	cccttatcca	gtacctgcac	ataaagatcg		770

(2) INFORMATION FOR SEQ ID NO:1061

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 504 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1061

tatatccatg	caggatatag	ggctctttcc	caaaacaggc	aatactctcg	catcggtcaa	60
gaatatgccg	atgtcgtgca	gcatggcagc	ttcttcgaga	agagacgac	cgctgaagc	120
tcgggatgga	tttcgacgat	acgaagacca	aggccgccac	atcacggcta	tgctctacta	180
aaatatggta	ttggttgttc	cctcagtgta	gtacttattg	atgatgctga	tcggatccat	240
caatttggga	agagagttag	acgggaagtg	cccggagccg	ggatcgaacc	ggcagaattt	300
gcatttcattg	gtgtttgaga	ccaacgcgtc	taccaattcc	gcctccgggc	aattgtcttt	360
tcgaatacgc	gcaaaggtag	aaaaataatt	catccgcaaa	tacttcttga	taaaaggagg	420
tctatgggtc	aaaaagatgg	atagtatcga	agagagaaa	tctctcttcg	atgctgcccc	480

gattgcttta tggcttttct attc

504

(2) INFORMATION FOR SEQ ID NO:1062

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 661 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...661

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1062

gttcgttcgc aaaccacagt gacaggagta caaccacagc tatctctcgc tttgaccaaa	60
tgagcaattc gccaagcga ttaccatcg tgggcttggg ggacgggtta ttcttaaacc	120
tcaaacagag cgttattcgc atctcccgaa ttggaggatg tgtcaatgca ccttgcaag	180
attgccaaaga tagaaaagtt cctcatggac tgatgcgatt tagcgatggc gaactatgct	240
atatactcgt cgcatagacc gaacagggca aggggaaaag ctccaatgg aagaatgtgc	300
cagctctcag agcgtctgac cgaatataaa taaaaggct caccgagcag gtagccaagc	360
tgatctccaa gtatagctct gtgcaaaaac ttatcttgct aagtactggg agcagggtact	420
cttttcgtgg ctgataggta agccgatatg cacctcaaga attactcgct ctatgctcca	480
gagggaaatg atatcaactc actccagctt acgacctgct gtctacggca cttgtattct	540
gaggatacag aagaacttgc attgaccctc tgtggcaaaa agcgcaaatc actcgccaac	600
acttcctcga agcgatgaca gcctcaggac tagatgaaag tgtgtgacaa tatttcgctc	660
g	661

(2) INFORMATION FOR SEQ ID NO:1063

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1865 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1865

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1063

cgatatgtgtt	tatccgggtcc	taaggggggtg	acaatgagcc	acgcatggaa	gtcagacctc	60
gcttgtggca	ctcttttagg	gcaaactcca	gcgggtcgag	tccggcttgc	ctgtcccggg	120
gaatatggtc	gattgggggtt	ctatctcgag	gggtaaatga	catctccgcg	atgacgcacc	180
tgaaagaata	cagtgtgaat	ttctcacgct	tgagcctgtc	cagaatacgg	cagagttctt	240
ctctcgtttt	cgcagtcctt	cggccgtagg	agcggagcgt	tgtggccagt	cgagccatat	300
atggtgggtca	gccatacccc	acgcatttcc	tctctcaccg	gacgaccac	ggttcgatga	360
caggagctgc	aatcacctgt	tccggaagag	gctcactgtg	gggggagacg	gggcgacctt	420
tttagtgcca	cagccggcaa	aaggagagcg	gcaatactga	cgaaccaccc	tgtgagaccg	480
ctaactttca	atttgatgtt	atcgatcagg	cgaacctctc	cgcaatatac	cgtaatacac	540
ctacggcatg	gtcgggtgtc	tgccagttgt	cgatcttttg	taaggaatcc	cgtctactat	600
ttcgaagtac	tccacttgca	gatgaggcag	ggcattaggc	tttccgtcac	ccatcgcgta	660
acagcttcgg	gtgtatgtgc	cggacgagtg	tgcggctttg	tccgaggatg	cgagcgatgg	720
atggggctat	ggcacctctt	cggtgccgag	gcggacgttg	cggctactga	gtgcaagccc	780
gtcccttcac	ggatgatagg	acaggccacg	atcgtaacgg	gtaagccaag	cagttcacca	840
tgctgcggat	aacggcgatt	tgctggaaat	cctttttctc	gaatatgcct	tgtccggctc	900
caccatcatg	aagagtttgc	ttaccacctg	cccacgccat	tgaagtgtcc	ggggcgatgc	960
ttgccttcca	tcacttccgc	acactgcccc	gatcgaatac	gcgagtgtcc	ggttcgggat	1020
atacctcttt	acggagggca	tgaatacggc	atgacaagcg	gcttccgcca	agactgctca	1080
tcggcttccg	gtgtgcgggg	ataacattcc	agatcgcgtt	tgtcgttaat	tgtgtaggat	1140
tgacaaatac	gcttgccacg	caaagtgcgc	attcggtacg	gcacgggtgga	tcagactgat	1200
gtgtcctcgg	tgcaaaagtc	ccatctgggg	acgaggccga	tggttttccc	ttcggcacga	1260
gcatgtgcca	caaattcttg	agtgaagcga	cgggtgttgaa	tattttccata	acggcattat	1320
ttgtcttctg	ttatgacttt	ggtgataaat	ccctcgggga	taattttttg	caaggaacag	1380
attattttgcg	gattggccgg	tttgatagag	agacttttag	tgtacttttag	ccttggtcta	1440
tcgttatgcc	ctcaaaaatc	aattcgatga	aaaagtatta	tctctcttaa	tgggtattggg	1500
tgctatcatg	ttttactgca	tgatgcccg	tcgcaataa	gtattcgtgc	ttttgagttc	1560
aacgccaatt	caatcattcg	ccggccggca	ccgggtgccg	cagtgatctg	ctcggtagga	1620
tctgaatctg	cggatgcaac	tgcatcatgc	cgaactaccc	gatgcctgga	tttctatgtc	1680
ggcatccagc	ggagagagag	cttttggcag	aatggaatgg	gccgatcatc	tatgtgaatc	1740
atcccgatgg	gacaaaagag	aaatgaactt	cggcactgct	gaagcccgtt	tcaaagcgat	1800
gcatacagca	agtgtctgatt	gcttcggccc	ggcatatacc	ctgtctatag	gcaagcgttc	1860
ggtgg						1865

(2) INFORMATION FOR SEQ ID NO:1064

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 598 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...598

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1064

ggctgtatct	ctgtcagact	gttccgatgg	attccgcaca	gctgaggggac	agccagatgc	60
aaggccgtat	ctatgggtacg	aaggagccga	tcgttgtcca	tggcttgccct	atgaagtcga	120
aagctccaag	cctcattccc	tccactgcag	tggaatcgaa	gcccagcccg	tcatcagtat	180
gacagggcag	gaagtgatat	ctgcatcttc	tccagtagtt	cgaatccttc	cctgccggag	240

gtcgaaggga	gaaattcata	tccatcagaa	tcacagccgg	cttacagccg	ccataggatt	300
ccgcattatg	gacaaagctt	cgtcgggact	gttggctata	acggattata	gcccgcctgc	360
ttgagcacca	gacgcagtgc	ggcacagact	gcacatcatc	gtctacgacc	aaaatatcga	420
tcagtttttc	cattgcacgg	taaagtacaa	attggcggtg	aagcacggtc	ttttctgtcg	480
aatgtctcaa	cgagactgtt	gcaggggatt	ttcattgaac	tctttttccg	cagagctgat	540
ctttgtgcct	tcgtgaaagg	gtaaacctcc	aggacatgag	caccgagcaa	tagatatt	598

(2) INFORMATION FOR SEQ ID NO:1065

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 547 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...547

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1065

gcgaatagcg	aggcaacttt	gaatgaatgg	tgcgactatg	cacacccggc	ggcatcgtga	60
gggtagaagg	tcgttttttg	aaaatgactt	acaacataca	acctacaatg	cagtctgcac	120
ccggattaca	ttcgaaaatc	aagaaatgaa	ggaacgatcg	tcttgatacc	caagcccaaa	180
gtctcgctgc	ctcatggtcg	gaatcggtgc	cttgcatccg	aaccgaagcc	gggagggaat	240
ttatctttgc	gaagaagacg	acacctttgt	gtctcacgat	ggtaacgaag	taacataggc	300
ggtaaacctt	tcttgctcaa	taccaacgta	aagattgtgg	gggcgtatct	caaaagtatg	360
ccgtgggggt	aggagaaatt	cgattcctgc	agtttgtgcc	caaacagtat	cacaacaaaa	420
atgaacacaa	gatgaaacaa	aaatacttgg	catacagctg	tcacaatgga	caaagtgttt	480
tctttcattc	tcctgattgc	aggatgtaca	ggagcattat	cgggggcagtc	ttccatcaca	540
tcgagag						547

(2) INFORMATION FOR SEQ ID NO:1066

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 970 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...970

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1066

gccgcaagtg	tcgttttcgg	tgcagaggca	caggtcacag	agtcggggct	ccatattgga	60
aggatattcg	tacggtaagc	gtaaacaaag	aaccggcggg	tcgtccttta	tgacctatgc	120
cgaccgaagc	gaagctctca	ccggcaatat	gagaagagtt	cgtactaccg	tcttctgaac	180
ggcacgtggc	gattctttat	gccgagagcg	aggcacatct	gcctgccggc	ataacggata	240
gctcgcaaat	acaaagggat	ggcacgacat	ccaagtcccc	ggcaactggg	agatcaaggg	300
cacgggtgtg	ccatctatac	caatcacgga	tacgagtttc	agctcgcaat	ccgcagccgc	360
ccaaactgcc	ggaagccaac	cccgtagggt	tgatcggcgc	gagatagaag	taccacgga	420
ctggatggag	cgcgatatct	actccatata	gccggagcca	agtccggact	ctatgtctat	480
atcaacggac	cgaagcgggc	tacagcgaag	actccaagaa	tccggccgaa	ttcctcatca	540
tccctatgtc	catgccggaa	aaaacacgct	cacgctcaag	gtctatcgtg	gagtaccggc	600
tcgtatctgg	aatgtcagga	cttctggcgc	atcagtggat	cgaacgcgat	gtattcctct	660
ttgcacaacc	caaggcggca	gtgaagattt	cagcatcaaa	tccacactcg	atgatagcta	720
ccgcaatggt	atatttccct	gaaagccgac	ttacgcaacc	gccgtggcga	agcctccgag	780
ctattctgac	atacgaattg	ctcgatgccg	aaggaaaagc	catcgccacc	gaaccggttc	840
gaccctcata	gctgccggcg	gagagcgtac	cctctctttc	gagcacagcc	gggtacggta	900
catacatgga	cgtcggagca	tccctatctc	ttaagctctt	gatgacggta	cgagagaaag	960
ggaaagtcac						970

(2) INFORMATION FOR SEQ ID NO:1067

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 885 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...885

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1067

ggaactcacc	atcgacgaga	ttgtggaggt	gaacgggtgag	aagtggatat	tgcgaaaagg	60
cacaagacac	aggtgccgta	ccaagtgaag	ctgctcgagt	acccttgcaa	atcatcgaca	120
gataccgacc	gttccaaaag	gacaactcat	attcggggac	atcaactact	ggacgggtctg	180
caagaagctc	aaaaaatcat	cagcgaggtgc	ggaataacaa	aagacatctc	cttccattgc	240
gcaagcacgg	ctttgcgaca	ttggcactca	gtaagggcat	gccgattgag	agcggagccg	300
tgtactcgga	cacacgaaca	tcgtaaccac	gcaactctat	gcgagataac	caccgagaaa	360
ctcgacaccg	acctctccat	gctcggcgag	aactcaacgc	ctcatttggc	tatatcaaaa	420
tggtcatgaca	atgaaaaggga	aggcataaac	agcaatgtcc	gtcagataat	cacgggtggac	480
gaacatggga	catcaccgta	cccaatgaag	aaatatggat	gagcgagtat	gagattgccca	540
cctgctgggc	gtattcggac	ataccatccg	cacgcagggtc	aagaagatta	cagggatgga	600
ctgctgcact	cctgcacggc	agagaggaac	atcaggggggc	ggaggggtcgc	tggcttgatg	660
tgtacagcct	tgaatgggtc	atagccttgc	gttccgcctc	aggtcgcaaa	gggcaaaaag	720
gcttcgaaaag	catgtatcgc	aatgctgacc	gaacgacacg	gaggctttat	catgttcctc	780
ccagagaagc	aggttggttc	tgctaaaaca	gcctgacagg	gtttatagag	gttgtcccca	840
ttgacacaag	gggataaacc	ttttttcttt	tttggtggct	ggaga		885

(2) INFORMATION FOR SEQ ID NO:1068

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 962 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...962

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1068

```
ggattgatgg agtggatggc aatgctgttc cactgcccac tgtattgggtg accatctgaa      60
agaccggaat gttttggggc atggtgctct gttcttttag caaatggaat agttgctacg      120
ggaaaatctc ctcaagaaat tgctgaagtg tggctgtcgg cgaagtagat cttacctctt      180
accccttctg ttctgcaatg tcattgcaga tacattggca ccgctcataa caggagggat      240
gcaaaaaatag ctgccaacag aaagagaaga gaggactaca tcgagactct cggaaagggc      300
ctagacctta tctctacgtt attgttgcta ccggcaatat atagaagacg ttgttcaagc      360
acaagcagct gtcgccaag gagccgatat tatgccgtaa tacgtactac gggacagagt      420
ttgctcgact atgttcctta cgagctacga cagaaggatt cgggggtact tttgctacac      480
aagaaaactt cgtatcatgc gaaaagcctt ggatgagggt ggagaagagg ttggtcgatt      540
atcaggctct gcaactattg ttcaggctct tgcattgccg aaatagccta atgggagcac      600
tcgaaggcct ggatgtaatg ctcaatgatg ctctctagga attcttttcc gagacattaa      660
tatgcaacgt actttgggtg atcaatcatg agtcgtgtta tcaatggatt tgccggcggt      720
atcatcaata ccggtaggat aactacctaa ccactgctga tgccttagaa gaagcacata      780
ccgtcttgcc tcggatttga tcaatgagca gctggctctt acagccggat tgcttcagaa      840
cagatggggc ttggacatgc atttgaaatg gatcccatgc tcagaatigga ttccttttcg      900
aattggctca agcacaaatg accagagaaa tttcccaaag ctccgcttaa gtatatgcct      960
cc
```

(2) INFORMATION FOR SEQ ID NO:1069

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 623 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1069

gaactcacgt	taaagtagat	tatagaaaga	cccagtaacc	caattgtaga	ctatcccggc	60
ccaactggtc	aacttttttc	agtacacgnt	caaacttttc	gtttggcgcg	ggagcgaaaa	120
aattctcacg	ccactgcgaa	aaaattccgc	gccgcttttc	gggaaaacac	gcgccacaat	180
cggagcgttt	ctggttgat	ttccgaggct	gtcagttgta	gactttccga	caatgggtgta	240
gctctactcc	tccatcctac	aggctcggcc	aacagacaag	cacgacatcc	ccaccattgc	300
cctcgcacat	gactgatgag	atcgtgactg	ttgatgcagg	aaccataaaa	aggaattttt	360
ttcggattca	tttggcgcat	aacaaaaaaa	gctacctttg	cagcgtcaaa	atcagaagga	420
gcttttcctt	tgtggggtat	tactccgtag	ctcagttggg	agagcaaagt	actcttaatc	480
attgggtcgt	agttcgagcc	tcaccggggg	cacaaaccaa	tagcagaggg	ctgtgttgaa	540
tagttttttt	gacacggccc	tttaactttt	ggatcggggg	tcgcctttgt	gaaaggatat	600
gggaaatatc	tgtcaaatgc	cga				623

(2) INFORMATION FOR SEQ ID NO:1070

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 930 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...930

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1070

cagtcctttc	ctggtcgggt	tcgtttcgcn	tgaacgaaga	ccgatacttg	agtttgtttt	60
ctttcatatt	tctgtcggtt	ttttctaaat	ttcctttggt	gcaaaggtac	atacgaacaa	120
gtattcntga	gcgatgcaga	aaaatgaaga	tgaggaataa	aaacctatga	cacagttggt	180
tacattcaat	tcgtaaccct	ttttgctttt	tccctgatgg	gttacgattt	ggtaacggaa	240
ctcctccggt	tgatgctcgt	tcttgcttac	cctcaaaaata	gtaagaaaat	gctaatagata	300
ttattttcaa	tagttacatt	ccctgcattt	ccctctgttt	ccctaattct	taatgactga	360
ttatgcccac	aagatgagct	tagatttacg	cagattgatt	tggagaggta	ctcggatcat	420
atagacaaca	aggcaagcca	cgtgccaaaga	tgctcaatga	ctattaccag	aagttcgaatg	480
cacagaaggg	acgcagttcg	ttttctctga	tttagggact	tataagcccg	gaggagaatc	540
aatgtctatt	cggagatcaa	acgtaagttg	gtagaagact	atcacatcca	tcgcatgaag	600
tacgctttat	ccaagagtgc	aagaacgaga	aagccaaaaa	gcaatgggtg	acgccatgaa	660
ccgtggcgac	atccgcatca	tcttcgttct	acttcgatgt	tgggaaccgg	ggtgtcaatg	720
cccagcaacg	tgccctggct	atccaccacc	ttgatacacc	tttggcgctc	ttcggatttg	780
gagcacgcaa	cgggcgttgc	cgtgccgtaa	gggcaatatg	attgccaagg	agttgcggat	840
aacaagtncg	atgtgattat	ctatgccgta	gaacgctctc	tgatagtata	agttcaattt	900
gcttcacaca	agcaagttgt	tcataaatca				930

(2) INFORMATION FOR SEQ ID NO:1071

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 537 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...537

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1071

tcgatattcg	tcagttggta	cgaggtgcag	ccgatatgca	agccatgacg	cttcagacat	60
tcctttttcg	gacaatccgg	ctttacgata	cgcggcagtc	gcaatgcttt	gtatgccgaa	120
ggaaagaaga	tagagatact	ggccaattcc	atcccaaaat	gcactatata	ggagagtggg	180
ggaagcagct	tttcgggaga	gcgagggcaa	agaggagaag	gggatcttca	cggcaactgt	240
ggatcgacta	ccgacctcca	ttccatggga	caatggatgc	aggagggcga	acgtcgatat	300
tcgagacagt	gatttccgta	gaaaatcaag	atacatgctt	gacattcctt	ccgactcggc	360
ggatttggat	gggcttaact	ttctggccgg	aagcgtgtag	acgaagtaaa	taagatggct	420
gaattgggta	cccggctggc	tatgtagatg	ggggagtacc	taatatacgc	atcattttgc	480
cgcaattggg	tgcttattat	ataggggcag	ttggtctatt	tccttttgaga	aagccgg	537

(2) INFORMATION FOR SEQ ID NO:1072

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1801 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1801

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1072

tcgtggaacc	gacttctcgg	ccaaataggc	aagcgccgat	aatacctctt	ggganccaac	60
atctccatcg	atgggtatgc	gcttttcgac	cgatgccagc	gtaccaact	tgtatgggat	120
cacgggagta	gatcggctct	acctgtagg	tgcggatcgt	accgttactc	gcaggacggg	180
aatgaatncc	ggtatcactt	tcgtaccatc	tccacagatc	atatcgaaac	catcgaaata	240
gancgggcat	ctcatccgta	ggggaaggta	atcttgcga	ncggagccat	tcgctcngta	300
ccaagcaagg	gtctgctcca	cttccaaatg	cgtgtcaagg	ctgtcccctt	agcaaaactg	360
cctatgtggg	gaagggatcc	aaagtgtcca	aggcggggca	tccattcata	cgggaataga	420
cttctcgcac	aacaaacccg	agtgaggggg	gtgttgata	gctataagcg	gagtacgctg	480
catgccagat	tagcgatcag	ttgaattacg	gggatatgat	cgtggacttg	ggatcgggt	540

gatgcagacc	ttttccattc	aagacagcaa	atcggatcag	ctcgtcaaga	gtatgaagag	600
acctacaact	ccaagtattt	gcgttcttct	ctttcctcga	tgccaaagtc	cgcttttctgg	660
gtagttggct	caatagtata	gactggttct	ctctgccgac	tatacttccg	atctgctcaa	720
aaggaagaaa	tactaatcag	tacgagtggc	ccgaagagta	tgcccgtagc	taccgaaagc	780
ggagacatga	aggtgttttc	ctccccttcgg	cctactatgc	ctactatgaa	ataacaatca	840
gccgctctat	ttcttcagcc	gtttcaaagc	caataccgat	ataacttcac	cgaacgtcat	900
caccatcatt	tgctgtacgg	gctggaagct	ccagcagtaa	gaatatcggg	aggggagtgg	960
tggccgatcc	tactcgtccg	cttatccggg	aaacaacagc	tatatccgcc	ctcgtcccaa	1020
ctataatatc	cggttcggg	ctatgctgca	ttctttgtcg	aggacagggc	ttctgtcgat	1080
ggggagccaa	taggctgggt	attcaggccg	gactgagggc	tacgcattat	tcaatctgcc	1140
ttcgtcctat	gccctctctc	ggaagatgct	gatagaccgc	gtatcaaggc	caactggcag	1200
tacagagccg	aacatctgtc	gataacctgc	gtgccggata	cggtatggaa	aacaagttgc	1260
ctacactgga	tcattgtatc	cggacaagat	ctaccgtgac	ttcatgggtg	tgaatgccta	1320
tatcagaatc	ccgaactgga	tcattctcat	acttatactt	atatccacaa	tccgagaatc	1380
ctgctatcag	ggagaaccgc	aatgtcaaaa	aagagatcgg	ctagatatga	cgtacaagcg	1440
ttctgacttt	tctttgacac	tcttccacga	gaatcgcgac	gcggtttcga	gtatttgcag	1500
tcctatctgc	ctatagcctc	gaccgctata	ccaagctgat	agcccctctt	cctccgggac	1560
acaaaccgag	aaggaggatt	atattcagga	gcatacacaag	gatttctttg	ttatcccacc	1620
gtgcagaatt	ctgccaaaagt	agtcaagcgc	ggatatcgaat	ttcgtttgcg	acaccttatc	1680
tgaagccat	caatacccaa	gtcgaagtca	atggacctat	taccatacgc	tctacgttct	1740
gggtatccct	atcatgttcc	gaccgatagt	gtcggagtac	gagcaggctc	tctatcctta	1800
t						1801

(2) INFORMATION FOR SEQ ID NO:1073

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 611 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1073

agttgtaaat	cccccttgag	gagctgcttg	cacgagctcc	tcaagggtgt	tataccttat	60
cctagagatg	aggacataat	tatccccggg	gttctgtaaa	attaaaggcg	atgctttcaa	120
gaatgttttg	agtatgggtc	ttggcaatcc	ccggtatcga	catcgtccgc	catgaaacca	180
ccggcgaata	ctgccaaagt	gcgttcgatg	gtgctccgta	tctccacaag	gcttgcatcg	240
acaagaccct	ttcccgtgac	gaaatgtgat	ggcgggaaaag	ttgtttgtta	aactcgccaa	300
tagttttgtc	atgagcccca	actctgtcag	tgccgaacga	aatgactgat	ggtgctgtgg	360
tcgggagata	cctcttccat	agccccgaag	atgggaaaag	gtgattgaat	cattgatgcg	420
ctcctncaaa	gcacaatcac	taggtttgtac	catgtcttcg	gaagcaacat	cttgaataag	480
agaatcacgt	ataagccggg	cgccgatggc	atttttgtcg	ttcgtgtatt	tcttgttgac	540
aagcgtcctg	atcggacgcc	aatcgataag	cctgtcaacc	tgattgagaa	gtcgttttgt	600
gctttgcgat	a					611

(2) INFORMATION FOR SEQ ID NO:1074

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 842 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...842
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1074

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caatgagtgc caatcatgac ttatagcgga atgaaacttg gtcatcgttc gggcatggcc      60
gaaggccacc ggaacgctct atcccctggt ggctccgcc taggtgccgt aggaaccttt      120
tgtcacaggt agcgatactt tgggtccatat cctctttcgg caagttgcag gcaggagtag      180
ctcatcagat cgggtgtgat cccagtggtt ggctgcagcc aatacggcag gagctacggg      240
aggaagatca tttcgccaca gagcattgcc attgctacgg catcttgcaa ccaaagggcg      300
aggaaggcag catcctccgt tctgccattc cttatgctct ctttatgtgg tggtcgtagg      360
tctgatgggt tacttcctgg cctaaggcta tattataatc gtataatcgg cggtttgtag      420
tcgggtatttg caagagggtc tccaacgggt tctccttacc ggagaccgtt gcacaataac      480
cttcacacct tcatatcgat caagacagac acaagcattg atttgacgaa gaaaggaaga      540
tttcatgcaa tctcttcaaa gctcaagtat acctctgatg gaaacttggg aaatttctgt      600
ttgcttggtg gccatatctt gaggtttgat ctttcctaaa aacacttaag aatcagctct      660
gcggcataaag acttcaatga aagtccataa aatagttgca aatagctgat agttagcgca      720
ttgatgggag cagaacagct gacaatcgcg tcctgcatcg tgcaggaagc aagaatcagc      780
tgacatcgcg tcctgcatcg tgcaggagca agaatacagc gacaatcgcg tccgcatcgt      840
gc

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(2) INFORMATION FOR SEQ ID NO:1075

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 267 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...267
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1075

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gatcggacgc caatcgataa gcgtgtcaac ctgattgagg aa*gtcgtttg tgctttgcga      60

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taacgctttg aaaggagtg	gtctgcaa	atgtacatg	atcggtatt	ttggattgg	120
atgccatggg aggaatatta	tgctgnttta	atactcaa	atacaaaata	actccctact	180
atacaatcaa ttaacagcaa	aatacacacc	aattgccgtg	caaagggtct	tataaaatac	240
ttgaaatgct acaacccaaa	gagctat				267

(2) INFORMATION FOR SEQ ID NO:1076

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 593 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...593
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1076

gcaggaagca agaatcagcc	gacaatcgcg	tcctgcatcg	tgcaaggaaga	agaatcagct	60
gacaatcgcg tcctgcatcg	tgcaaggaagc	aagaatcatt	gacaatcgcg	tcctgcatcg	120
tgcaaggaagc aagaatcagt	tgacaatcgcg	tcctgcatcg	tgcaaggaagc	aagaatcagc	180
cgacaatcat ttcttgttct	cacctatcgg	cacaagcatt	gatttgacga	aaaaaggagt	240
gcttctgtga gtctctgcga	acctcaagta	tccacctctg	aaagaaactt	ggggaatttc	300
tgtttgctcg atgtccatat	accggagggt	tgatctttcc	caaggcacta	agaatcagct	360
ctgcagcaaa agagttcaat	aaaaatcccg	tgaacaagtc	tcattaagtg	ttttcgattt	420
atatatgatt gaaaatgggt	ttatataaat	cgcagggtcga	aaaaggccaa	tatatgagct	480
gagtgtagat ttcattgtca	tttaatcatt	tgtcaaagag	ctttacaaag	ggaccgaagc	540
tctatccatg tatataaatg	ctcgctgaaa	gcaagttcta	tcggcattca	atg	593

(2) INFORMATION FOR SEQ ID NO:1077

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 467 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...467

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1077

ccggtgagta	ccgtttcgct	ggtggcatgt	accatggctt	ctaccatatg	ccgtctttga	60
ggaactggac	gccgtcgatg	cttgcacccg	gtatggtgtc	tgctcgaacg	tttcggggtg	120
catgaagttag	tatcccatct	cgtcctgtag	aggtactgat	agggacgtcg	ttctattctg	180
acctcttcga	ccttgagccg	ctgttccagg	tcttatcgag	gatacgtcct	gtagccacgt	240
tcttggtttg	gtgcggacga	aagccggggc	tttgccgggc	ttgacgtgaa	ggaatcgacg	300
atgaagtagt	attgtccctc	aatttcgaga	cacatgccgt	tgcaaagtct	gccgttgtag	360
ccatttgggt	ataatcgctt	ttttaatgat	gagaaagggg	tagggggcgg	ttctcgaaat	420
actgccgatc	cttcgggata	tggaagcc	tcctgttgcg	gaggcaa		467

(2) INFORMATION FOR SEQ ID NO:1078

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 479 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...479

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1078

ggcgatataa	ggtttgagaa	aagccttgcg	ccggatctcc	gccaatccgc	tgaatcggaa	60
ggaatctctt	ccggtacgat	ctgctcgatg	gccatccctc	ctcatttccg	atcataaact	120
ctatgtccgt	aagtgaagta	atcttttggc	ataggaaata	ctgtcgagca	tctcgttgga	180
aagacgacgg	atcagcccag	attttctttc	gtgaaggat	tgacacagtc	ggtcaatata	240
gcagctagtt	atcattgccg	aaaacggatt	tgaactcctc	cgtcttgatg	atcaaggatc	300
gtcctcgaga	aaatagtcct	cccaagaggt	tttgatacta	aggaacgcaa	tccattgaat	360
ccaagaagga	gaaaaaagaa	aaaacctccc	aaacaatcca	acgcttgcg	ataatccatt	420
cgccacgatg	gctaaaccac	cgtaaatgcg	ttctattttc	attgctttgt	ctcgtttgtg	479

(2) INFORMATION FOR SEQ ID NO:1079

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1708 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1708

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1079

gcgggggtacc	ccgcgacctt	ctactcgtac	gattactgct	tgatcgccct	atgtaattct	60
gataatctca	tgatagcgca	aaaatactaa	ctaaaccatg	aataaacgag	aaatacaatt	120
tattattaaa	gagactgttg	cacaataccc	tctccccctc	tcatattgat	caagacagac	180
acaagcattg	atttgagaag	aaaggagaag	cttcatgcaa	tctctctgca	aacctcaagt	240
aatctaaaaa	cacttaagaa	tcagctctgc	ggcaaaagac	ttcaatgaaa	gtccataaaa	300
tagttgcaaa	cagctgatag	ttagcgcatt	gatgggagca	gaacagctga	caatcgcgtc	360
ctgcatcgtg	caggaagcaa	gaatcaactg	acatcgcgtc	ctgcatcgtg	caggaagcaa	420
gaatcaagct	gacaatcgcg	tctgcatcgt	gcaggaagca	agaatcaact	gacaatcgcg	480
tcctgcatcg	gcagggagca	agaatcaact	gacaatcgcg	tcctgcatcg	tgcaaggaga	540
agaatcaact	gacaatcgcg	tcctgcatcg	tgcaaggagc	aagaatcact	gacaatcgcg	600
tcctgcatcg	tgcaaggagc	aagaatcaac	tgacaatgcg	tcctgcatcg	tgcaaggagc	660
aagaaacagc	tgacaatcgt	ttcttattct	cgcctatttg	acgaggaaaag	gagtacttct	720
ctgatggaaa	cttgggaaat	ttctatttgc	tcgggtaccca	tataccggag	gtttgacctt	780
tcccaagaca	ctaagaatca	gctctgcagc	aaaagagctc	aatgaaactc	ccagcaacag	840
tcttaccgca	gatacgattt	ctacaagaaa	taatatgcga	aggcaagact	cctatatcca	900
aggagtctgc	gccttctttt	ttctaaacct	cacttttttag	gctctgctta	gtgtcggaat	960
ttttttacag	atgagtcggt	tttctatttc	ctttccgaaa	accgcgtcct	gtatcgaagt	1020
caaaatcatc	tcatcacctt	cttcccaacg	attgcgaatc	ctgctttcgg	aacgagggtt	1080
ccggcattgc	gttgcgacgg	aacctctttg	tgttgtttag	gacgcggttc	tttcgctttt	1140
catcctgtct	gccttgattg	gaggcggagg	gagcgaccgt	tcctcatatt	tgcgagggga	1200
gatttcttca	cgaatgagat	ccttgtagga	atgtcaatat	catcaagaag	aacaatgtct	1260
ttttcgcaga	ccaatccgtt	aagcgagcga	ttcgaccatt	gatttttact	cttccttcgg	1320
tgagtatttc	tctgcttcgc	ggcgggagcc	gagtcgggca	tcgctaata	gctattaatt	1380
ctcagtttca	tctgaattca	aatcagtaag	tgtggaaact	atttggtaat	gataagttga	1440
ggttcaatct	gagtacggca	tgcataatcc	tgcggaagca	gggtttattg	ccgaaaacgg	1500
agcaaggccg	gcaatccaat	ctgctccgat	acaatcttct	atgcgctgac	catatccgag	1560
aaatcctgtg	ccggatgcgt	ggcacaccag	atggagataa	ctcgtgtacc	taccaatatg	1620
cgaagtgcac	attggcacta	tccattgaaa	ccatacagcg	caaggctgaa	taagagatag	1680
ctcttccgga	gcgacagcag	accggcaa				1708

(2) INFORMATION FOR SEQ ID NO:1080

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2419 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2419

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1080

ggcgtatcgt	ggagcaagga	cgccacgatg	aactgtatgc	cctgggaggt	actacacgaa	60
gctatgcgat	atgaacgcag	aatgagaaaa	tgatactttg	tgaagaaaag	aaaaccgatg	120

gactacaaga	ctcgcacatcat	atatgcctgt	tgaaaagcag	gctgaaaacc	atcgacacct	180
atgcctctcg	agctgagaaa	tacaagaccg	ccagctcagg	cgcacccctgt	cgagtgcagc	240
ctacaatcca	ccggatatccg	ctacgggttc	aatcgcataa	gctcgaaaaga	gtgtttgctc	300
gcaacgtacc	tgttcgcgat	tacgaatcga	cacaagccga	aatgaacgaa	tgcttcgtgg	360
cgaaaaagac	gtgctctgtc	cggggcgttg	taatggtttg	ccaaaagcag	cggcaccacc	420
aatagcaaaa	gcaagttcat	cccgttccat	accgccacct	gcactattgc	cattatcaag	480
gggggaaaga	tccctatcgt	tatacctacg	caatagacct	gacagtcgtt	tcttcacgat	540
aaaggggttg	tactgggttg	cagtcacgcc	cctgtatcca	tgaatgccat	atacaagtcg	600
gcgacttgag	tgccatccct	gtcgagaata	tgcctgtctc	ggcaactgca	tgcgcgtacc	660
ctcgaaagaa	acgctcttga	tggacgggtg	acggagaagc	tcaaagccgt	agttcgcgaa	720
gtggcgcgat	tacgatcgga	agcttgtccg	gcgtaccgtc	ttggatccct	gtcttgatca	780
aggagtactc	gcagctacag	gccgagagag	tttgtcggat	gtatggccgg	aatggaagta	840
tttttccacg	gcggtatcag	ctttgctccc	tatcgagcgc	agatgagaag	ctgataccct	900
cttcacggat	gcagtatatg	gagacgtata	agcttcggaa	ggtttcttcg	gtattcagga	960
tgatccgaag	gatagcggta	gctgctgatg	ctcgattacg	gagtttacta	cgaattcatc	1020
ccgatggaaa	tttcggccgc	cccgaagcgg	aagccatccc	actcgaagga	gtggaaaagg	1080
gcgcaattat	gccatgatta	tcagtacgct	cggaggactc	taccgtttgt	actgggcgat	1140
accgtacgat	tcacatcggt	gaaaccatac	aagatatcat	caccggtcgc	accaagcact	1200
atatcaacgc	attcggagaa	gagctatggt	agacaatagc	gacaaggctt	tggcggcgac	1260
atgcaagcga	tttgcgtgca	ggcagtgga	tatacggtag	cgccccactt	tttttcggaa	1320
gaggcaaagg	acggcacgac	tggctgatcg	aatttgtctc	tgcaccggct	gaccgaatgc	1380
gtttgccaaa	gcattggatg	ccgagttgca	aacgctcaat	tcgactacga	agccaagcgg	1440
tatgcagaca	tgactctgct	cccactctcc	tgacgatcgc	tcgctccggt	ctcttccacg	1500
attggcttac	ggagcagggg	agctggggag	acagcacaaa	gtgcctcgtc	tgagcaatac	1560
accggaaaaa	tgaggtctat	cctcgaaatg	aacagttaat	cgcactctcc	cgattatggc	1620
agggggagat	gtttccgaac	aaaagaatca	atgagtaaaa	agaaagtaaa	agcaagacta	1680
aagcccgcaa	gggagacgct	cctcgcacat	accgtccggc	cgtaggaaca	agcgcgatgac	1740
caaggaggag	atgcgcaatg	ccatttggac	atattccaaa	gcaatccctc	gagcgtgatg	1800
aactacaagc	aggaagccat	ctgatgggag	tagaagctgc	accacaaaag	ctaattggtga	1860
accctctgat	gaagacatgg	ctgtgggatg	catcctgcat	gagatagagc	gggacgctat	1920
cggtagaatg	ccttgggatt	gattgtcata	ggcacttttg	gcgtcgggtc	aatggccgca	1980
attcgtttat	tcccgaaggg	ggcggaaacg	cattttcatt	gccgaaagaa	attcggcaca	2040
tgccatggac	ggtgacaagt	gaaagtacaa	ctcttttgcca	aacgtcgtgg	tcgcgcgccg	2100
gaagccgcgt	gatcgagatc	atagaacaga	agcaggccac	tttcgtcggc	aagatcaaat	2160
caatagagac	ttgttcttcc	ttgttacgga	agatcgacc	ttagcaatga	tattttcatc	2220
cccaaggaca	acctcggcaa	cgccaaaaac	ggcgtaaggt	aatagtccga	atactcgaat	2280
ggccggagca	atccaagaat	ccctcggaga	ggtacaagcc	gtattgggac	cggccggaga	2340
caacgatgcc	gaatgaatgc	cattttggcc	gaattcggat	tgccttatgt	ctatccccaa	2400
gggtggaaga	ggcagccga					2419

(2) INFORMATION FOR SEQ ID NO:1081

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 426 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...426

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1081

gtccttgccct	gagtcctgacg	actaccttac	cgtggccgga	tttatacctga	tagccatcaa	60
aatatccac	aggccaatga	ggtcgtggag	attgctccta	tacttttacc	attctcagat	120
cttcttccac	caagatcgaa	ctggtgaaat	gtccatcgac	gaccaatcga	actaaaaaac	180
aatcagttga	aaggctggca	ttttgaagcc	ggtttgatc	tttggtggctt	aataaacaca	240
ttcttatagt	gcataataaa	tagaaaacat	aataacaaaa	tggcgacatt	agagaaatca	300
gaggtaaagc	cggtttgctc	atcgtaantgg	tgggcgtggc	tcttttgcct	ttattatcgg	360
agacttcctt	cgatccggat	ctactttcct	cctcagagcc	aagaaattag	tcttgatat	420
caaccg						426

(2) INFORMATION FOR SEQ ID NO:1082

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 574 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1082

cgtaacggct	catgacttat	ccacacgacc	ggccgtatcg	acaagtttgc	cttgccctgta	60
agaacggaat	gcgacgtatt	ggagatttcc	actttgataa	agggtaagta	acgccgtcga	120
tctcgatcgt	ctcctttgcc	tccatcgaga	gcgtgtgata	aagatgtcct	cgttggacat	180
atccttaaac	accaccgacg	ataattttcg	ggatgaatac	cttttttcat	tgctgtctat	240
ttagtttggt	cttgttttcg	ttcgctattg	acgtactctg	gattggtaac	cgttgtttat	300
aatcggatag	agatttccgg	acggcaaagg	tagggatatt	atttacttgg	caagcagtta	360
ggccgagtca	aaaatgagtt	cgatcattca	tgcggacatt	catgctctta	agataagcag	420
gaggggacgc	atgctcgtgt	agtcgatgaa	tcgtgtgtcg	gatttacgaa	ccgcaatcgt	480
tgtaattgtg	cgcgagaatt	ttgaaaaagt	ggaacgtaaa	ttatttcggt	ttggttcgaa	540
ttttttttgt	tcccgaacca	aaataaaaaa	attc			574

(2) INFORMATION FOR SEQ ID NO:1083

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 796 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1083

ggcagatgat	gatacacggc	aagcgcaaac	aggctgcggt	ggagaccatg	aggagaccgg	60
ttggccggtg	ctattcagtg	ctctcaccac	ttttgttgtt	tgctttcttt	tctggctatt	120
cccgtcgtag	cgatgcactt	tatcggttcg	ccacttctgc	cagtgtcctc	ttctccttta	180
tgatcgccat	tacggtatgc	cgactacctt	gagtttcggc	aaagaccatc	agccgaaagc	240
atcaggcgaa	aagaaggaaa	gcacgcgctg	gatcgatggc	tcgaagcctt	cggtcctggg	300
tgttgatca	tgagaagtct	gtctgggggtg	cttttatcct	tatacagtgg	tgatgctctt	360
tggattcttg	aaaatggaga	cggcattcga	catgaaagaa	caatggggcg	acggatagaa	420
tacgtcagca	atatccttgc	ctgagcgaaa	gcgaattggg	ctctctttat	tcctatgata	480
ttatgatcga	ttgggagagg	agggaaaggc	caagaccccc	gaagcacttc	gtgctctcgc	540
agcatcgctc	gccatgcaga	ggcatattcc	cttaccaagc	gtaccactcg	atattgaata	600
tcctcaagga	tctgaaccag	accttgacag	atggggacag	gcatactata	gcattcccgg	660
cgatgcggag	gaaagtggca	ccagcactcc	tcctatatga	gaatgcnggg	ggggagtgaa	720
gcccgaaagc	tggatgactt	acgaatacca	gaccgggttg	tacctgaaa	gttgggaaaa	780
tgacctcttt	accaat					796

(2) INFORMATION FOR SEQ ID NO:1084

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 385 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...385

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1084

gttacaacgt	aatcgacttc	gtagcggagg	gttgttacag	cagctccctt	gcaattatag	60
gtacaattcg	agatgcagta	ccgttttttg	ctgttgagga	attgccatga	tgcttttgcc	120
gttttttagac	catgctgctc	cacgaactaa	tctacttgac	cgccggttcc	gctgaattgc	180
ttgcttccta	tacattggac	acgacttgtc	ccataagatc	gatttcgata	cagctattga	240
tgctgccata	ttatcatttt	gagcgattac	tcgcggatca	ttgacgtaat	ctacggataa	300
agttctacat	cgggattttt	gtcgatgaaa	tgatatacgt	cttgcttcca	ttaagaaggt	360
tgcgaccatc	tttccggggg	gaaga				385

(2) INFORMATION FOR SEQ ID NO:1085

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 874 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...874

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1085

actgtcgtca	agcgatttga	ggaataccgg	catgagcatc	aggatttgtg	ccaatgcggt	60
ggcaaaactgt	gcaaaacgaa	ccacctcggt	accaccgaga	gcgtctcgct	caaataagtc	120
atctcacggt	tggccttggc	tccttcctat	aagccttttc	gagagaagac	aatacatcgc	180
catagacagc	actcttccgt	tcttacggat	ccagtctgcg	aatgctcttt	cctcggcacg	240
cttacaccta	tcacgtcaag	acgagcgaga	ccgcggttca	taccgatcga	attctccaat	300
agttagcact	ctgagcatac	ttgctggcat	atttgatacg	ggtagcctgat	ctgcgctcat	360
ggcttccttc	cagatgcctt	gcttgatacc	gcaacttcga	tacgaggatt	gttctcgttt	420
tcgatacgat	cttccacacc	caagaagtga	ggtagcgatc	cgtactgccc	gggaaaccga	480
tggatcatggc	tagtcgtcag	ccttgtagcc	ttgcatggat	acggcagcga	agtaaaccgc	540
ttatagggtt	tattgtcctt	gctgtattcg	gccggccggt	tgtcggcacg	gcatacacgc	600
ggaatacgct	gaagtcgccc	gtgtgacgcg	gccacatcag	ttgtccgtat	cgccctccgaa	660
cttacctaca	gagctgggag	gagcaatacc	atacgaacgt	ccttgaatac	atcgtagacg	720
atgaggaagt	attcgtgttg	gaatagaaaag	gctctacgat	gcagagttgg	ttctcgctcg	780
catttctttt	ttggccagtt	cttggcatac	ctcctgagct	ttgcgcagac	gctcatctcg	840
tcagtgatac	ccttgagctg	tccttctacc	ttgt			874

(2) INFORMATION FOR SEQ ID NO:1086

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1314 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1314

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1086

gaactcccc	tagaccaaca	acccgaacat	ttgctgttta	gccatttgcc	tcaatagctt	60
agtcccgaag	agcgtagagc	catcatccgg	ctatgccatt	accacacacc	caatgttggg	120
ctagtgcgtca	tcgatggcat	tcgcgactga	tgcacgacat	caacaactct	gccgaagcga	180
ccaatcttat	gggcgactga	tgcaatggac	tggagagagg	aacatccaca	ttcaaaccgt	240
tctgctctca	acaaaggaga	tgacaatgct	cgtggacaca	taggcacaga	actgacaaca	300

aaacggaaag	tgtcttgctc	atcaccaagg	acaacagtga	tgcgacagga	gcgttgctc	360
agcgtccatc	attcgctcta	agcctttccc	tcctttgctg	ttaggctcac	cgaagtagac	420
aacatctgcc	tacgcgagtt	aacacagact	tcacggccaa	agacgcacag	cctttctcct	480
accaagaact	agtggtgagg	agcatcgcac	agccttgcca	gaagcctttg	gccaggcttt	540
gagttgggct	atggcgacct	attgaagcga	ctcagctcat	catacttagt	gtcagtggtc	600
gaccttatgg	acagacgaag	ctcaaagaat	tgctccgttt	ctcgtgaaca	aacgtatgct	660
cgtcaaggct	agcagaggac	gctatcgttc	aacccagact	tccattactg	acacatcggt	720
tcggtcgggc	gcaggtatat	atgcctgacc	aaccgaccaa	ccataaataa	agaatggtcg	780
gacgaaggag	tgcttatagt	aaacgtccga	ccgaccaaag	aagaaccgcc	aaaaaaaaaac	840
agcatgcagc	tacacgacat	caagcaagtc	tccatcggtg	acacttagca	caagctggct	900
ttgaagcaaa	gctcatcaag	ggcgtgaact	atgggtattgc	ccccctctac	gctcagagct	960
cacgccttcg	tttaaagtca	tgccagagcg	aaccaatggg	atgacttcgc	cacaggagac	1020
cacggagact	catcgacctc	gtttgcactc	tccagcattg	ctccacagca	gaagctataa	1080
acggctatct	gcgctgaagg	gtgtacggct	agcaccgtct	ttttctttgg	aggaataaact	1140
cccgtaaagg	tacaaagatc	ctccatggag	ctcatcgcg	acaagctgtg	aagcatccca	1200
agctcttact	gtatctctcg	gagcggggct	acagccctct	gatgcctctc	ccttcttctc	1260
ggaagtctat	tacaagtctc	taggaagtgt	ttctttgccc	ggggatcctc	tana	1314

(2) INFORMATION FOR SEQ ID NO:1087

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 393 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...393

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1087

gccgccgatg	cattaagagc	agaagccaag	gcttccgtac	tgattacaca	tcagcgattt	60
tgagatccgg	aagattttatt	ttcttccctt	ttactttgct	tcgaagggtta	agaagagttc	120
actcttgctc	atggccggct	tataaggaaa	gagaatacga	gctgctgatt	gccaccattg	180
tcatagctga	ctacacctca	ttgccaaagta	ctttttctcc	ctgaaaaagg	aatgaaggtc	240
cccatattca	cctgtagcat	agcgcagcac	aggcttcact	gtaagttcgg	ctttttattg	300
aaccatttgg	caggaaaagc	gatactcacg	gtcacaggca	cttgcttccc	acgacttcag	360
tggttggtggc	tcagccttta	ccaaatcggc	agc			393

(2) INFORMATION FOR SEQ ID NO:1088

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1343 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1343

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1088

```
ggttatgagt ctgcgtcatt tctgtgggac tgttggtctg attcgttctc atcccccaact 60
caagaaaccg atagccatca agaggaagaa aaagatttac tttctcattt tctactcggg 120
attagtgaag agaatcgaat ttctcgttgt aaattatcgg gaacttaagg taatggaaaa 180
tcctatacct tttgttttcc tataaaacag cacttctatc gacaacgata tgaaagnang 240
atcaacaact cctacaggaa atcggtcagt gtgtggctgc caccgtggag gaagcgaagc 300
tctgccaatc aagtatctaa gcaaaaaggg cgaaatagcc cgttggttca tgacttccgg 360
ctgggtaccg ccgaagagaa aaagcaaadc ggcaaagct caatgagctg aaaaacaagg 420
ctcaggagca tatcaactcc ctgcgcagcg ggacacaggc ggctctgcac aagcttcggc 480
agaaaccgac tgacacgaac atcatacccg acgagactcg gaacacgcca tccgatctcc 540
tgggtgaagca ggagatctgc gagatctttg cccgcctcgg cttcagtagc ccgacgggccc 600
ggagatagag gacgactggc atgtattctc ttcgatgatt tcgccgaaga ccatacctgct 660
cgtgatatgc aggacacatt cttcatgagc atcgccccga tgtcatcctt cgcacgcata 720
cgtccagtgt ccaaaccggg tgatggaaaa gacacaaccg ccgattcgcg tcatttgccc 780
cgggggtacct accgaaacga agctatctcc tatcggggcg attgtttctt tcacagggtg 840
aagcactgta tgtggacaag gatgtttctt tcgccgattt gcgcagggtc ttctttactt 900
cgcacaggaa atgttcggag ccgaaaccaa atacgccttc gcccttctta tttccccttt 960
accgaaccgt ctgccgagat gacatctcct gcaatatatg tgggggtaaa ggttgcaact 1020
tctgcaagct acgggatggg tggaaatact cggatgcggc atgggtggatc ccaacgtatg 1080
gacaactgcg gcatagacag caagaaatac agcggctatg cgctcggatg ggtatcgaac 1140
gtatcaccaa tcttaagtac cgagtcaaag accttcctt ttctcggaga acgacctcaa 1200
cttcttgaaa cagttcaaga gcgtgactaa ccctctgata agtatcgaat gcgcaaggaa 1260
gagcgataca aagcgttatc gattggtttg ccgagaatat gccggtggcc gaaacggagc 1320
tgcgtaccgg gatcctttcc agt 1343
```

(2) INFORMATION FOR SEQ ID NO:1089

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 647 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...647

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1089

```
atctctttcg gtacggctca cacggctcctg ggtaatgtcc ggaagctccg tacgtcttgg 60
ctaaggatac ccattacgga cctttcggcc caagggtacc ttaacggca tttgccagtg 120
```

catctacgcc	cttcttcaga	aggtcgcaga	ttccatatcg	aatttgattt	cttttgccat	180
agtctttatt	atztatattt	atTTTTTTTt	TTTTTtgag	gattattgtc	tcttccttta	240
ccactgggtt	tcctgttttt	gaaggccaac	ctgcagtgtt	aacttgttct	ttgattcttt	300
tgccatagtc	tttattattt	atTTTTTTTt	TTTTTtgagg	atTTTgtctc	ttcctttacc	360
actgggggtt	cctgtttttg	aaggccaacc	tgagtgttaa	cttgttctga	TTTTTTtggt	420
ttgcccatta	gatgattgcc	agacatcggt	ttggcgcatg	atgatata	tttcaccctc	480
cagctctatt	cagtgccggc	atatttgccg	tagagtacgg	tgtctcctgc	tttgagcaca	540
tctcttcgtc	tttcgtgccg	ttcccgacag	cgattacttc	acccttgaag	gtttctcttt	600
ggccgaatcc	ggaataatga	tcccgcctcac	tgtttttctt	ctgctgc		647

(2) INFORMATION FOR SEQ ID NO:1090

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 289 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...289

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1090

tgacaatccc	tcattttttt	aaaggctctt	atatacngttt	tactcgtcgc	gttcgattgt	60
tttctttccg	gccggggaaa	gtttccccga	cagccgacaa	aataattttt	ccggccggaa	120
aatctctatc	caaagggttc	ggatatgatc	caaagccttt	gaatacatat	ccgaaagctt	180
cgtttatata	tccgaacctt	tgaataaaga	attggattat	ggcttttnca	acttttccgt	240
actgcgaaaa	aacttttttt	ggccgggnac	gattatttct	ttttataaa		289

(2) INFORMATION FOR SEQ ID NO:1091

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 897 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...897

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1091

acgatcggca	gagagaccag	cccgacgaag	aggatgggca	tcaggatcgc	atcacgagga	60
aggatttctt	tcggacgcga	atcatgtatt	cgcggtgttg	atagtgttaa	tggtgttcat	120
aacgtcagtg	tgtatcggtg	gtttcttttg	tgcttggatc	ggattctctt	cctctacgcc	180
gtggcctacg	gtcttgtgaa	tatgtcgtgc	atgctcggga	tctcttcgta	gaaggacacg	240
agccgaccga	ctcgggcagg	tcgcgcacga	gatcgcgggt	gtgcgccgtg	gttttttgcg	300
cactctcagc	ttcgatcatg	aacccggtag	ctccgtcttc	tccgtatccg	gatccggccg	360
aggtagtctg	ccggcagctc	gccttcgact	acatgcggat	aatgccgagg	ctgttctccc	420
tacgcacttc	gcgcacggct	cgtggagcac	tacgcgcgat	ttgttgatca	gtgcgaagtc	480
gtcgcatact	cttccaccga	ctgcatgttg	tgctcgcaga	agatgacggg	acgctccttc	540
cggccagctc	cagtatttca	cgcttcagca	ggtcggcatt	gaccggatga	atccgctgaa	600
gggttcgtcg	aatatgagca	attccggttc	gtgaatgcgg	tgacacacga	ctgcaccttc	660
tgctgcatcc	ctttggacag	ctcttcactt	ttttgttcca	ccaaggcatg	atgtcgaact	720
tctcgaacca	gtcgggagcc	gcttgccgcg	ttcgtgcttg	ttcactccct	taagttgcgc	780
tagaagatgg	cctgctcgcc	cactttcatc	ttgggggtaca	gcccccgctc	ttcggcaagt	840
agccgatgcc	gcgaatgtct	tccgctgcat	gggatggccg	tcaagatcac	ttctcct	897

(2) INFORMATION FOR SEQ ID NO:1092

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 605 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1092

gcacgtcctg	cagtctgcgt	gagcgaacga	tgcgagcgca	ggaatccttc	ttatccgcat	60
ccagaatagc	cacaagcgaa	acttccggca	agtccaatct	tcgcggagca	gattcacccc	120
gatgagtgcg	tcgtagaccc	ccttgcgagg	tcttccatga	tacgcacacg	ctccagcggtg	180
tccacatcgc	tgtgtagtag	cgggtgctga	taccgtggcg	tagcaggtat	tcgctaagct	240
cctctccata	cgtttggtca	gggtcgttac	cagtacgcgc	tctttctttt	cgatcagcgt	300
gctatctcct	ccatcagatc	gtccacttgg	tttgccgtcg	gctgacgtcg	atgatgggat	360
ccagcagtcc	ggtcggacgg	atcagctgct	cgcgatcacg	ccttcgcttc	tggtcagctc	420
ataagtcggc	aggcgtggca	cgatataaag	ggtcgggggg	gtgagagctt	cgaactcgtc	480
gaagcgaagc	gccgattgtc	gagagcggca	ggcaggcgga	atccgtattc	gaccagattt	540
cttgcgcgaa	cgatcgcctc	cgtacatggc	acgtatcttg	cggtatcgac	atggctttcg	600
ctatg						605

(2) INFORMATION FOR SEQ ID NO:1093

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1093

ctttggggaa	agaaagaggt	aggaaaacgg	ctatcaggtg	atcaggaaaa	agccaagcgt	60
ttgcttcttc	cttacctctt	tatggggacg	gtggcattct	gcctaaagtc	ctactgagtg	120
cctacacata	ccacccgatg	aggcctcttt	ttcggatatg	tcagcagctt	tctttttccg	180
gcaacgaatg	ctattccttt	ctgtgggttt	tgccctgctt	gttcagtcta	ttttgcctgg	240
ttgtttttat	cctcggaagt	ggatggaggg	accgaagatt	ttcggagctt	acctatcgcc	300
tgccttctgc	atatagtcac	cgaatacatc	cctgtggcat	tcgggatgat	cctttctgta	360
ttatagcagc	ctttaacaat	tttactact	tcttctgggt	atgatgttat	accgctattc	420
cgatcgata	gtttccagac	ggtatcggtg	gccctgctta	tcgctttcca	tgtggcactt	480
ttctcccggt	ctttatgccc	gagcagtcac	cgttcttggg	ggtattgaac	tggtcttata	540
tacctgttcc	atcgttgtcc	tttatggcgt	gtcggtaaaa	atcggagaaa	ggtgatgcct	600
gctccattgc	ttcacggtat	agggttgtag	agctatccat	attcattttt	tcattggttcg	660
tgctggtcgc	attgagaata	gtccttatga	ccgctatgag	ctgagcacca	tgatgatcaa	720
tggagctatt	gccatagttt	catagccggt	ttgttcatac	cgctttacct	gtccaagttt	780
ttggcaggaa	acttccggtt	tctctcaagc	cgctggtcgg	attgtaagca	gaccagagga	840
gctgcgcaag	aagggaaagt	taagggtcga	acttacgaag	agaaaactat	cgataacgaa	900
cggacttaac	gacatgattc	cggccgaatc	aggaagcctc	gcaaatagcc	atagacacgg	960
ctcacactcg	cagagtccgg	actgaagttg	tcagcatatt	tattcccggg	ttcacaggtc	1020
ggctgaccga	agaacggtat	tgtcggtgca	aaccaattgg	agaaacatct	ccatcgttca	1080
tcaggacgaa	gttgtagacc	tctcagcctc	gtgacaaatt	ccaatcggtg	ccttccttat	1140
aagctgtacc	tgggggtgatg	atgaaagacc	tggttcagaat	ggcatctccg	gccggtagaa	1200
acacgtacta	tctccggcca	gcataatgat	gaatccagtt	cgtagaacga	accatcgagc	1260
atatccatcc	ctttttctca	cgtcccaacg	taatctgctt	gtccagatcg	attcgctgct	1320
tttcagttca	tcccgaacgc	tttggcagat	ggcgatatac	tcttccaaat	caggcgacca	1380
taccacatca	gcgtgctgtc	gtaatccatg	cgagtagtgc	ctacttggca	aacagattgg	1440
gtgtaaaccg	cttcacgaac	actatccgtc	attncggatc	gtatatatta	gcaaagtgc	1500
catcggccac	ataaagttca	ccatcagatc	cttcaactt			1539

(2) INFORMATION FOR SEQ ID NO:1094

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 605 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1094

gggaatgtct	tcttcaatca	tgttcgcaat	cggatcgatt	tcacctacaa	ggcacagatt	60
tgatctacac	caacgtatcg	aaagaaatga	gaatattcgc	tttgaaggac	aagcgaatgt	120
ggtactgcct	tacggctttg	gttttcggct	tcattattcct	acacttatga	tcgatggaag	180
gcgaccgata	aggccgaact	gagatgaagc	tctcaaacac	ccgccctcat	gcagctactg	240
ccactttctt	tatggacata	atttttcgaa	gaattacaga	ctagcctcca	actttccacg	300
cgtttccttt	ccgatctgaa	aacaggggcgt	atgaactccg	acggttgttt	gaggaaataa	360
cgtatccggg	ttatacgatc	tgtcgttttg	atttgaaaat	cattttctatc	ggaactatac	420
gctccatatac	ggtgcggaga	actgttcgat	tataaaccca	aagcattggc	attcaattcc	480
ccgacatcac	cggacgtatc	atatacgggt	tggttcggat	cactttctaa	tacgacttat	540
tgcaacagaa	atataatttc	gccacgatga	agaaaaaata	atttatcttc	ggtagccatc	600
ttatg						605

(2) INFORMATION FOR SEQ ID NO:1095

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 590 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...590

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1095

gggctgggca	gttgctgggtg	tcaggctcttc	ggatcgctta	caccgaatgg	caggaggcta	60
ttcagtatgt	gcgcaatacg	ctgaatatcc	cctatcagtg	gaagtcctgt	gcatcatcgc	120
tatcggacac	aaagccgagc	acaggggaccg	cgccctgcat	cggaattgaa	gtggggagAAC	180
gtttttatag	gcgaattccc	gattgggaga	gtgtgtcgca	tgattgatcc	tgtaggactg	240
cccgaacttt	cgtgcgcata	gtgcttgtcg	gcagtggaaa	tctggctacc	caaaggctct	300
ggccttgtcc	gaagccgcca	gtccgcccgt	tcaggtatgg	agcggaatgc	cgagcatgcc	360
gaacggttgg	cttccatgct	gccgggagca	acgctaccga	tcggacagag	gagctactct	420
gcgatgcaga	gctttatctc	ctgcagttag	cgaccatgct	ctcgaatccg	tagctgctac	480
ccttccgccc	catcgggaat	atgggcacat	acggctggca	gtatgccgat	ggataccctc	540
gcccttatca	tgcgcagatc	ggggtcttct	atcctcttca	gacattcacc		590

(2) INFORMATION FOR SEQ ID NO:1096

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1104 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1104

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1096

cgggtgtaagt	cgccaattag	gttcttctat	gaaatctgtc	ggagagggtt	ggccatcggt	60
cgcaccttcg	aggaggctat	ccagaaggga	ttgcgtatat	cggtcagggc	atgcacgggt	120
tcgtagagaa	caaagagctc	gtgattccaa	tatagacaag	gcactgaatg	agccgaccga	180
cagacgcatt	ttcgtctaag	caaggcattt	cgtcaagggt	acacggtaga	taaaatacat	240
gaactactaa	gatcgatcgc	tggtttctgg	aaaaactcta	tggatatcgt	accctgcaga	300
ggaaatggaa	gagttcgaca	agctcgaaga	tccttcacct	gctttttggc	tgaggccaaa	360
ttgcgcgggt	tttccgattt	tcaggtagct	cggctgtact	caagccggat	gctacttcga	420
tggaaagcgc	aaccaatcag	gacgtgccat	gcgaaaggag	ctggggaatcc	taccgggtggt	480
taagcgtatc	atacgcttgc	agcggagtat	cctgtctata	cgaactatct	ctacctgact	540
atagtggcga	tcgtcatgat	gtagcctatg	agacgacaag	cgttccgtgt	tgtactcggg	600
tcgggtgcat	accgtatcgg	tagctcgggt	gagtttgctg	gtgtgggtgc	aatgctctgg	660
ctaccatccg	taaggaaggc	tatcgggtccg	tcattgatcaa	ctataatccc	gagacgggtga	720
gtacggacta	tgatatagtg	acaggctcta	cttcgacgaa	ctgacattcg	agcgcgtaat	780
ggattttctt	aactggaaaa	tcctcatggc	gttattgttt	ccacaggggg	acaatcccga	840
acaaccttgc	agttcgtctc	gatgaacagc	atgtgcccac	ccgggtactt	ccgcacagag	900
tattgacaat	gccgaggatc	gtcataaatt	ccagccatgt	tggataaatt	gggtatcgat	960
cagccccgtt	ggcaggagct	tcttcgatgg	acgacattga	cggattcgtt	gccgaagtcg	1020
gttatcccgt	ttggttcgtc	cgagctacgt	cctttccggg	gcagctatga	atgtgtgccc	1080
aatgatgaag	aacttcatcg	tttc				1104

(2) INFORMATION FOR SEQ ID NO:1097

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4902 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4902

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1097

ggcttcgata	ctcgcagctg	tgggatcttc	tccagcattc	acgagcagat	gcggacatca	60
accgcggagt	cgaccgatcg	gatcgatccg	agcagggacc	ggagaccaag	gtatgatgtt	120
cggctacgcc	acgaacgaga	cggagaatac	atgccctga	cagtggatct	ggcacaccac	180
ctcctctacg	aattggcgct	atccgcaagg	agccttcttc	tccgatgcct	tatttgcgcc	240

ctgatccaag	agccaagtga	cgatcgaaca	tgacgatgaa	ggcagacccg	tccgatagac	300
acgatcgtga	tttccacca	gcatgacgaa	tttgtccaag	catggacggg	atttcagaag	360
cagaagccga	ccggatgatg	caggagcgca	tcacatgatg	atagctacca	tactgatccc	420
ccgagtgaag	atgctgtaca	accggagatc	gcagcccctat	tcgacgaaaa	ggtacgccta	480
ttcgtcaatc	tacgggtaag	tttgtgatag	gagggccaca	tggagacacg	ggcctgacgg	540
acgaaagatc	atcgtggata	cttatggagg	cagggtctct	catggcgggg	agcattttcc	600
ggcaaggacc	cgtccaaggt	agatcgctcc	gcggctttgc	cgcccgcacac	atagccaaaa	660
acatgggtggc	agcgggctg	gccgacaaat	gcttgtagag	gtagcctatg	ccatcggtgt	720
agcagagccg	gtaagatata	cgtcaatacg	aaaggccgga	gtcatgtggc	tctatcggat	780
ggccaatagc	ggagaagatc	aagaagattt	tcgatatgag	tccttacgcc	atcagcaacg	840
actgaaactc	cgcaatccga	tatacgaaga	gaccgcagca	taggccactt	cgggcgcgaa	900
ccctacgaag	catacaaaac	ctttgtcgat	ggcacggaac	ggaacagatg	cgaatcgtgg	960
agctattcac	atgggaaaag	tggattacgt	agataagatc	agggccgagt	tcggtctgtc	1020
gtaatcacac	ctgcctcctt	ttatcgcaag	acaaaggctc	tgccattgac	ttcgcttttt	1080
gctttactaa	agcttggcag	acagaagctg	cttgttcctt	tcttagggat	gcagagagga	1140
agtttattct	accggttttt	cacttcatca	gctacaagac	gaccaacggg	gcagcagagg	1200
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ggatttgcga	agcggcattt	cagcccttcg	gccgtgacgg	ctgatccgct	gaaactgaat	1320
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cattccgtaa	tccgtaggca	tcacgatctt	ttcgaaaaag	cggatatatc	gggcagatgt	1440
gccagattgc	cgacaaaatg	atcttcacga	gccccgatgt	ccccagcaga	cagacctcgc	1500
gaggggaata	ggctctggcg	agaatgtaac	tgtcttcgtc	agatcattgg	tatcctgctc	1560
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aatatcccag	aacggacata	acggtattga	cggcaaagac	gacagtgggt	aatggctgcc	1920
ggatttatag	aaaagggata	agctgatgat	attggctacg	accagcacac	ccagtgtcgg	1980
cggatgcgac	gcgccaacca	aatcatccca	caaagctgat	tacagtggca	agcgtatcgg	2040
cccacggcac	aagactatcg	tatagtggga	caacacatag	aacatcggga	gaaaagccac	2100
cgtagcccag	caaggctgat	ccacaggaca	cgcggggaga	tggatacgat	ggcacctctt	2160
ccgtcccttc	gcgggtggcg	agccacatca	cccaggccgat	aatacgggtg	tcagatagta	2220
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cactctctta	acgaagtaac	cggcagcaca	tagccgagge	ggaggtcgtt	taaccaatag	2640
gaggaagcat	gcgatcgctg	cgctgtgtat	tgtccagata	ttgcttgctg	acgaacggct	2700
cgtccaagcc	atttcgaaac	cggcatgaga	gagggtaagc	atgcgccggc	aatgacattg	2760
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agaagcatcc	cacgcagcaa	acgaggaagg	atctgccaac	cgagagtcag	ctccagtcct	2940
tacggtagct	gtcggggacg	ttgcttgtag	gcatctgtcc	cacatcgcta	aacggccatc	3000
cagcacgagt	tggctcttgt	attgcatata	atagagacta	ctccggccga	caagaggggc	3060
gaagcatagc	ggtagccag	ctcatagcga	tcagtcgctc	aggcgtagga	tactgtccta	3120
ttccggcttc	gggtgatttg	ttctgttagg	ctcgcgggtg	gctaccgcaa	cagaagcata	3180
ggcagatgag	catcgtcgaa	actataggta	agaccggcct	tcggattgag	gaagggaagg	3240
tcttgtccaa	atcgatgtgc	tgcatacttc	cctgtacctc	atctattcgt	ccgtgatgcc	3300
gtttatcgtg	tagccgatgg	tacgatactg	gagtcggcat	acatgttcag	ttccggagtg	3360
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attcgaagtc	ggagctaagg	gctgattgta	ctttttgatg	taagtgtatc	ggccgaagtg	3480
tctcctttat	agatattgcc	cgaaggcccc	aactgcacac	cccatgcacg	gtgtgccagt	3540
taagcgaacc	gatgagtcct	ccgaagtcct	tgtccagtag	ttctgacgga	tgagatccgt	3600
tttcttcacg	gtcacactgt	tttccaatag	ggctgcagtg	catattcctt	tagttacgtc	3660
cggtagcata	ttcgtcgtat	agccatatcc	ggccgtgtag	tgtgccgtga	ggttgaggat	3720
aacgaaggag	agaagctgtg	cgtcatgatg	gcatggtagt	gacgctgctc	gtattgtcgg	3780
tattgtggta	gtagtgcggg	actccttgcg	cgtccacgta	caaagaccgg	cactgttgta	3840
tcggcgccca	tatttggtct	catcctcctt	gaaagaccgt	tccatgcgat	acccgtaact	3900
tcttttcttc	cgaagtgat	aacctgagag	ccgtgttgct	accgaaatag	cccacctgtg	3960

cgaaataggt	ttcagatcca	cgcttcctct	atccacgtag	ccgtccgaac	cgattttgac	4020
aggcgggcat	ccactgcccc	atggcgaccg	atgcgtccgc	taccgagttg	accgatcggc	4080
ggaatgtgcc	gaacgaacct	ccgctcaaat	cgacacgccca	taaggagcca	gtcccaaatt	4140
atccgtacgc	atattgacac	ttgccccaaa	gctccggcac	cattgggtgga	agtaccacaca	4200
cctcgctgca	cctgaggtct	tcgatggaag	aggcgaagtc	gggcatattc	acccaaaaga	4260
cggctgagat	tcggagtcgt	tgaggggtac	tccattggta	gttatgttga	tggattggca	4320
tcggtgccac	gcacgcgaaa	gccggaatat	ccgatacccg	tccggcatcg	ctgggtggcta	4380
ccacggaggg	agtcagcatc	agcagatagg	gatgtcacga	ccataattgg	acttggaag	4440
ttcggccttg	cgaacgttgt	gtaagcgaca	ggggttttcg	ccgtggcgcg	agtagctacg	4500
acctgtacgt	ctggagctgc	acattgctaa	gactatctat	ctcgctgttg	gagacggtgc	4560
ttgtgccgtc	aggcagaaag	gcaggacggc	taaggcggca	atcatggaag	ttttttcata	4620
aatctcttat	cattgaagtt	ggacaaagaa	gagagggggg	aatgattgct	tcgccgtgaa	4680
gatagtcaga	cggagagttt	cctagccggt	attatccggt	tcagggtgatg	agggtttggt	4740
ctcagccatc	caccattccg	attgctacag	gaagcaccac	ttctcccaat	tttatgggac	4800
aagataagaa	aacgttcgtc	cttcagtatt	cgggacgata	ccgctcggca	tttcatcttc	4860
gagaatgctc	aagtagctga	tatagcggct	ctcggctatc	cc		4902

(2) INFORMATION FOR SEQ ID NO:1098

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 310 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1098

ggggatctac	tgcattacgg	aatggctgct	cgactgaggc	gaagaggtgc	tattcgacct	60
cccaantgcg	ctcgaaagg	aaaatcttga	tttcgatgtt	cggcgcttgt	ccatttgggt	120
cacttgaaan	cggaatggct	cgtacacgac	tgtatcgccc	acatggggga	gttcctgctt	180
gatttccaag	aagagccact	tagcgtatct	acctcgtccc	ccnattcacc	gaaagcattt	240
tccggaggtc	nagatagtgt	cgaacatcng	agacatacgt	ntntccttca	anaaataact	300
gcnatcccc						310

(2) INFORMATION FOR SEQ ID NO:1099

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 700 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...700

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1099

agtcctgtttt	ttagaacctt	ccaaatatag	acattccaca	gctaagtaat	gctccgcctt	60
tgatggggaca	gtcgtatctg	caatacctgt	ttgagtctca	tagagcatcg	agacaaacaa	120
taacctcccc	aaaaagaaaa	ggggggcgca	ccacatgccg	gctccccctg	ctttccctt	180
atcagggtct	tgttttttag	aaatgaacat	tgaatgtagc	caaggctgca	aaaacttcgc	240
ccccgattca	tatgtcgcag	tagctcctgc	cccaagggtg	ttggagatgc	gatatcgtag	300
gccatgcgag	caccaaggct	aaatttgcca	ttggcatacg	tgctgccata	gcatgcttat	360
tgtctacatc	catatataaa	taattattgt	tttataagaa	agacctgcct	gaccggctaa	420
aaccaaatac	tgacggctgt	tttccaaatc	agcttgatgg	ggctgaaacc	ggcaacggcc	480
ataaaggagg	agaacttcca	gaattaagac	ttttccaagt	ggcatcctca	tactgcgcac	540
ttccagataa	tggtatggaa	gagcagttgc	ctccgcatag	gagaatccta	ttgagactgt	600
tgcgggggag	tttcattgag	ctcttttgct	gcagagcgat	tcttagtgtc	ttcgggaaag	660
gtcaaacctc	cgttatatgg	acatcggcaa	acagaaattt			700

(2) INFORMATION FOR SEQ ID NO:1100

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 962 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...962

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1100

ctagaggatc	cccggttccg	agctttcttc	ttttgccgta	tcacggacga	tgaagaagac	60
gcgaggggag	tcgtatcttg	agtcgatgaa	gggtgtctgga	agttctgctt	tcgtctcgat	120
tggaggaaac	gctttcaaaa	aagttgattt	ctcggcaagg	atttccgtca	cttgccgacg	180
aacctctgta	ttgtctcata	cgtgcggtag	cggatttttc	cttcgacata	taggagactc	240
cctttttgat	ccacttctcg	gcaaaaatgg	ccaactcgcg	ataggcaacc	acatatgcca	300
ttccgttcgc	tccggcactt	cagtgccatt	ggccagcttg	tagctcgctc	ggaagtagcc	360
agcgaaaaag	ttgcgacagc	cgaattgcta	tcaaataacc	aatctcggga	tccttgcccc	420
tacggcctat	caagatgatt	tattcagaga	catgagcaat	ttctaaccac	gtgaacgaaa	480
caaaaatagg	aatatgattc	gttcaagcca	aatgctgccc	tgtctgcaac	ttgtgcatac	540
cgatgggacg	gccgaacgca	gcaagccaat	caactgttca	cgaagtttcg	gcgagaataa	600
tcctgacgca	cggccaaacg	tacttccctt	accggacagg	cataccaaac	ggacgcacca	660
gctctttctg	cgaagggtgat	aattgcctac	ggtcagttgt	ggaataaacg	taattccctg	720
accgctctcc	accaacgcat	gaatgcttcc	atgctaccgc	cggaaatatgc	cgtctgacgt	780
tcatcaaccc	ttcatctgac	aaaaacgaac	gagctgatct	ctgaagcaat	gaccttcgtc	840
caacagccag	agacgatgtg	ggttgacctc	ggtagtgcca	atcacatctt	gtcgaatagc	900

ggctcacagc gcgatacata cccagaaac tctcataata gagcaagtcg tcttcaagac	960
ct	962

(2) INFORMATION FOR SEQ ID NO:1101

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1357 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1357

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1101

accatatcaa agccgcaagg tccgaaccca tccggtacac ttcgcgatac cggaagaaga	60
cgaaagatga aagtacggct ttggggagtt tgtccaagtg gctctctata gcccgaacca	120
gcgcagaagc actctgtccg gaaaagaagt accctctcct gctgaagcaa tgtcacggca	180
catcttttcg tcgaattggt aacgacagga ttgcccgttt catctttgag gtatccttct	240
tcaatggtat aggtgcccc aaggtgttc cgagaccaat aacattgacc cgtagcctgc	300
ttcatgggct tgctgtgccg cttcgatggc atttccttca tgatttctcc atccgtcagg	360
acaatgatag tcttaccgat ttccttatta tcgaaaaaga tttggaggca agttcgatag	420
ccgctccgat agccgttcc tggctgtaac catattggga cttatatctg caagaaactg	480
tttggctgca acaaaccgt agtaatcggc atttgcgtat aagcattacc tgccaatata	540
ccaatccaac cttgtcgttc tgcaagccgt caaagagctt tcccaacatt gcttggcaaa	600
actcaaacga ttgggcttga catcttcaca gagcatgagt tggaaatata caaacaaatc	660
atagcctcga tacctttctc ctctttggca catccacacg aatacttatt tgcggacggg	720
caagcatccc gatcagaaaa cgatggcaag aagaagaaat ccgttgcgcc agatccgacg	780
tttgtacttg cttccggttt gagagcctta gcagcggaag ttcgggcaaa ccgtctttct	840
tgcgcccgtc ttttgcgata agcatagacg cctaccccca cagcaatggg agcagcagca	900
gtaagtataa gtattcgggt gaataaaatc taacatggga atctttttac gggttggaac	960
gaagaagtgt attgcgaagc aaaactctgt cagcaacaag agaaaagcaa taagggcata	1020
gacaaaagtat tttcctcata agccttgaag ctcttgggtc taagtctcgt cttctccatt	1080
tgtcgatttc cttgtagatt tcattcagcg tttcattatc gacagcctga agtattttcc	1140
acccgatacc tcggcaattc cgtccaatgt gggttctcta tatcgacagg cacattctga	1200
atccgaactc cgaattccgt ctgaagggga aaggagcttc tctcgtgtg cctacaccga	1260
ctgtgtacac acgataccga acgttctggc aatatcggct gccattcggg gtgtgatgtc	1320
gccatgttgt ttgatccgtc cgtcagcaga ataacca	1357

(2) INFORMATION FOR SEQ ID NO:1102

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1381 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1381

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1102

```
gctatcatgg cttcttctgt gtccatcctg atcttcgggt agcgtaccgg aatgggttga      60
gcttaatccg aatcaggggtc aatccatatg aacagtagct tggcaattaa ggcctaaaac      120
agcaagaatc gttttcatat aggctttgcc taaggancaa taccaagggg tgcaccgaaa      180
tcaattttcg atgcaccttt ctgcataatg cttaggaagt gaggattata tttctataag      240
aacctccgct aataccgcta taagtagtcg tcccttaaaa gtccttttaa gggagattag      300
ctaaacgcta aacgcaatat acacaggtcg cacgggtatt tccgtcagag attacgtaaa      360
gcgactgcag agtaaccccc atacaaatcc ggacggcaaa aggggagagc ctcttgacca      420
ttatgatatg cgtccgacag atggatgtat ttattctgac gaagctgatg acagatcttc      480
aggaggctcg ggagctgtgc acaagcagat ggatttgtcc ctcgaaaatg ccatctttgc      540
cgtaagctgt atgtgcttga tgccgacatt gaaatcttcc gaaataactg tgtcacagcg      600
gtgaggatac cgggtggagtc aatgcccttg agtgcgactt agcttcgaac gaggtacgac      660
tgtgcaagct ccattcggtg gagagggtcg gttgccaaag ctgcttttca aacgcatggc      720
aatggggcaa gatcggttgg tacgaccaca gtattatcgt cgttgataaa tccgaaagca      780
tcgtgcccgg aatcggtttg cagcattcgg caatctgata gttacgggag aatcgtcctc      840
ttgtaggata taagtctttt tgggtgttga agctttctta tctctttctc tgcgggctta      900
ccggatggag aggaggtttt gttgcttttg ccgctttcaa tgccgaacgg atagccctca      960
tcagaaaagt accgctatgt ctccctgaag cagttttttg aagctttcgg gcagagatac     1020
cgtacccgtc cgacggcgta gaagaatgtt tcgcgattga ggaaaccgaa ataggctgga     1080
tcctatccaa aagctcggca gagaccatgg attcggatgt ccgtatacac tgaccactcg     1140
ttcttcccca cgattgatca gctcccgctc tttgcgcgga gaaaagtatc tactttcgat     1200
ttggctcgtg ccgtagtcac atagccaacc actcttcggg cggttgctgg cttttgctcg     1260
aaagtacctc caccgatcac cgctgttgag cacataactg agcggaacga gtttgtgatt     1320
cacttgcccc cgatgcaatg gtctcccaa tccagagtga gcgaataagc aagtccaaag     1380
c
```

(2) INFORMATION FOR SEQ ID NO:1103

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 575 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1103

cccgattttt	atcaggacag	caagggttact	tgccggatgc	gaacaaaatt	caggtgaaag	60
ctgaaaatta	tgaacaggca	gtagccatta	taaaaactgg	caagggtgaag	acgtgatgaa	120
ccatgacgat	gaagaacagg	tcattttgtt	gaaggagaaa	cgctattgga	tacctccgaa	180
aatctttctc	ccaaagaaac	ggaggtcgtc	cgaccataga	ggtcttcgat	gacaagggaa	240
aggaatcacc	aataatttga	acccataaat	atcagagggt	atggctaata	tatgaccaat	300
ctgttcttct	gctccacaga	gaacaaagag	aacctgaaaa	cggagaaaac	tacatgacgg	360
atactttttt	cgggagtatc	ttttccgtct	ccaatctttc	atctgttgtc	ttcgatcccc	420
gactgccgat	aatgcaatgt	acacagtccg	tattgaaggc	tgacgatgtg	caaaaagacc	480
tcggcagaaa	tcaggtcgtc	cttacacgaa	tgtaggtcg	accttacggg	ccgtttaagc	540
gtccttacag	accggttacg	tcgaccttac	agacc			575

(2) INFORMATION FOR SEQ ID NO:1104

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1010 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1010

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1104

ggcggggtgg	ctatccgtct	cctacaacct	cgcggcggat	tattcctggt	ggaaacggga	60
gccaacgctc	atcgccggtt	gccccaatc	cggcatacgc	ccgtctgacc	ttgctgccga	120
tccccgtct	gtcgtcgcg	atggcagcga	atataacgcc	acgactctgg	agccggggca	180
tgtacatgag	gatgtttttt	cgactgcgaa	gcacgctaca	gtttcgataa	ggtttgggaa	240
gtatcgtttc	gatgcgcaat	ctgttcgatc	gtcgcgatga	tcttatccgt	caacgacgga	300
gtacaacgct	ttttccaccg	ctatcccat	tcgcggtcgc	gaatgcttgc	cacagtcttt	360
ttccgctact	gattttcttt	attcggtata	gcgccgagga	tcgtattgag	attctttctg	420
aatttcggta	cgaattttct	ttcggcgagt	aatttcgtcg	acgaaattac	tcgctgcagc	480
tatgcaaggc	aaatcttggc	aacaaaattc	atagaatccg	acctgcaaac	atgaatttcg	540
caacaaaatc	gcttccctgca	agctgcaaac	atgaatttcg	gcaacaaatc	gcttccctgca	600
agctgcaata	agcaattttg	ttgccaaagca	gacctttgca	agcttgacgc	aagggaatttc	660
gtcgacaaaa	ttacacaatg	cataccgcgg	caaggaattt	cggcaacaaa	atcatcaaatt	720
gcataatttca	gccaaaattt	cgatagagaa	atttcaaata	catgctttcg	gcaatcaatc	780
tttgacataa	aatttccatt	gccgaacggc	gataagaaac	tttgccaccg	aagtgatatg	840
tattccccctt	aatctttatt	ccaatatata	tgattggcag	gaaatagttt	catccactaa	900
attacaataa	tcgtatgact	gctttcggat	aagcttaaga	caagaaatat	ataattctat	960
cggtttttcta	tccacaacaa	attattttact	actttttatcg	aagcaaacga		1010

(2) INFORMATION FOR SEQ ID NO:1105

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 741 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...741
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1105

ctgtgagaag	aaactgctgc	gcaggggtgga	cctattcgat	gtgtacgaga	aagaacttgc	60
ctgccggaaa	gaagagttat	gcagtgagct	tcttcctggc	aatgatgaga	agacgcttaa	120
cgacaaacag	atagaggcta	tcatggcaag	atacgggacg	actctggagc	aaaagctcgg	180
tgcgcaactc	cgctgaaatc	aaacgaaaat	cgacaaaata	agaatcgaca	tatcattatg	240
ggacggcatt	tgaatatcgt	aaagcaagga	aaatgaaacg	ctggggcgaat	atggccgcgt	300
cttcaccaag	ttaggaaagg	aaatcaccat	cgctgccaaa	gaagcggccc	cgacgtggag	360
accaatccgc	gtctgcgtat	cctcgtgcag	acgccaagaa	ggagaacatg	ccgaaggaga	420
acgtggaacg	cgccatcaaa	aagctacctc	caaagactat	acggactaca	aagagatgaa	480
ctatgagggc	atggtcctta	cggcatcgcg	atcttcgtgg	agacagctac	ggacaataca	540
cacgtaccgt	ggccaatgta	cgcagctact	tcaacaaaca	tggcggatgc	tcggtacttc	600
cggcagcttg	gaattcctct	tccagcacaa	atgcgtattc	acatcgtaaa	gaaagacgat	660
atggatctcg	aaagccttga	actcgactga	tagactacgg	tgtggacgaa	ctggaagagg	720
ggatcctcna	gagtcaggtg	c				741

(2) INFORMATION FOR SEQ ID NO:1106

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 540 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...540
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1106

caggagacca	gcgtaggcct	acgggtgctca	ttacaacatg	ctaattatcg	tgcattatgg	60
ccaattaaag	taaaacgaga	acgaccttag	aaattttcct	gttttgcgtc	ttcaaaattc	120
gtttcccccc	ttgtttggga	agttcagctc	aatagcagat	cgacgacctc	gactccccctt	180
gtcgtatattg	aagcatattt	cttataatag	aaagaagaca	cgtgaagatg	gtgatgatgt	240
cattttcagt	acacatcgct	tttctttatc	tttgtagagc	atggtttcga	atttggaccg	300
gcttttgaaa	tcagatactt	ctaagaaacg	tttcaaagaa	ctagttattc	gaatcgatta	360
cccctgtgca	atgggtggctg	atagcaggta	tctgctcttt	gtttttgaga	tttttaccctc	420
gggtttcttc	ttggcttgat	cgtatgggag	cttttgctgc	cattataaccg	gcggccttgg	480

ggttggtctat gtgtggcana ccggtttttt atcgtggctt cgctgctctc gctcttccctc
540

(2) INFORMATION FOR SEQ ID NO:1107

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 896 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...896

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1107

gattaagaac caagatgaaa aaagtatttc aagatcttcc tttgggggtgt gttggccggt	60
gcagtgatcg gcacttttat gttcctctgg caaaagtcaa agccaaaccc aaagagtacc	120
aaatcgaaac ggtaaccaag caagacagat cgagagcaag acgggtgatca ccggtacgggt	180
agagccgcgc gacgaatgct catcaaacca cagatgaacg gcatcgtagc cgaactgctg	240
cacgagccgg agacgtggta cagagcggag acgtgatcgc ccgcctcact gtcgtccgga	300
aatgatccag cttagtcagg ccgagagccg tgtccgtatg gcgagatttc atacgagcaa	360
ggcaaagaat cgtatgcccc cagcaaagat ctttcgacaa atcgggtcatc gctctcgaag	420
agttcgaggc agccgaggca atttcgccaa aatcaaagag gaactgtcca atgcgcgtga	480
agccatggag tcgtaaacagg aggtgccagc agccgtacag ccaaacagag caatacgctg	540
tgcgcagcac ggtaaacagg aagatcctga atgtcccgggt caaagtggta attcggtcac	600
tcaggccaat acggtcaacg agggaacgac catcgctcga tagcggatat gaacgatttg	660
atttttgtcg gcaagataga cgagacgaag tcgggtcgcac tcgactgggc tctcccatgc	720
gcatttcggt gggagattgg ggaaagaaa ttttcctgcc acagtagaat accttgcgcc	780
caaggaagta tcagtaaacg gagctgtact gttcgaagtg aaagcttcgg tactattcca	840
agcgacagag taatccgtgc cggctatagt gccaatgctg aaatcgctact cgaagg	896

(2) INFORMATION FOR SEQ ID NO:1108

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 429 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...429

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1108

tccacattca	gatccgccac	tcccttcaca	tcgtgaacgg	aagtcttgac	tgattcccga	60
ttgcaaacag	ccggttcaga	tccggaccga	atagtttgtg	gcgatattgg	cgcgcggtacc	120
cgagagcatg	gcacgatgc	ggtgcgaatg	ggctggccta	tttcgatatt	cacacccggc	180
agcactttga	gcttctgcga	atgtcagcaa	ggacttcgtc	tttggaacga	tccttgagga	240
cgaaggcacc	tctatttccg	acacattgac	tcccagtgcg	tgctcgtcca	gttcgcgcgt	300
cccgtcttac	gccccacggt	ctgtacttcg	gggactgaaa	gcagatttct	tctgccatac	360
gccccattct	gtcgctttcc	tccagcgata	tgccggtaga	agtgccttacg	ttgatgggtga	420
acgaccctt						429

(2) INFORMATION FOR SEQ ID NO:1109

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 507 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1109

gagaaaatta	caagagcaag	tcctgatatc	caaaagacga	agggtttgaa	cgatcatcat	60
atttatctgc	aaggaacatt	accgcaagga	aaccaaataa	acgaaataag	gtaacatgat	120
tatctatttt	ttctatttgg	atgaggcgat	tcgatagcgg	aattaccgat	attaagcagg	180
gtaaaatcgc	tgtccgcgga	agttcgtaca	cattacgacc	gtcgatgacc	aaagatgcag	240
ccatctttga	gagagagctg	accaatcagg	cattctgaat	tccttccatt	ccgtacatgg	300
aacagagcct	ctgctncccg	gactggatcg	nacatatccg	tgatatttcc	aatttggcgc	360
ccaatctttt	ttgtgcctct	ttcatcgncg	cagatcggac	acccgaactc	tgcaaccaac	420
ttccaacagt	ttctcgatga	gaccagagaa	ggagcttcac	gcatatcatc	ggtaccgggt	480
ttgaatgaca	cccccatatc	gctacac				507

(2) INFORMATION FOR SEQ ID NO:1110

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2681 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2681

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1110

gccaaaggat	gggccggcgg	tattctcttc	aatgagcaag	cgaaagccag	ctggatcggt	60
tcttcgcacg	acccgatacg	ctcagcctcg	gtatctgcac	ggctgccagc	tgatggccga	120
gttggaactt	ctataccccc	aacacgactc	aagcacaagc	ttgtccacaa	cgaatcgcat	180
aaattcgaaa	gcacatcgtc	actctcgaaa	tcccgcataa	cgactccatc	atgctcggca	240
atctgccgga	agcaagatcg	gtgtatgggt	tgctcatggc	gagggtcggt	tcagctcccc	300
tacgaggaga	aagcctacca	tgtgggtggc	aagtacgaat	acgcggctat	cctgccaatc	360
ccaacggatc	gccacaccgc	atagccggat	tggcagcgcg	gatggccgcc	atctgacgat	420
gatgccacat	ccggagcggg	gatatccccc	tggcagtgcg	gttattatcc	cgaatcacaa	480
cgacacgaac	tcagggtgaca	ccttggatgc	aggctttccg	caacgcttac	gagtggatac	540
caagcaggtg	aaaaatggat	gacgtcgcgc	cccaactgac	agaggagcac	tgcttttccg	600
catcgcactc	acgcatgtaa	aaggcgtggg	tagcgtgtgg	caaggcagct	gctttcgggt	660
atgggcagtc	ccgaagccat	cttttcgaca	ggaaggagct	ggtacagagg	ctaccgaaag	720
cacctcgccg	ctgcccgatg	ccatcttctc	tccttcgggt	atggagggaag	cacgccgaaa	780
gttgatcaag	ccctcaaagc	cggctctgaat	atgtatttca	tcaccgatga	taatatacct	840
accgcttgaa	agaatgtgtc	gacgccccca	tccttcttta	ttcaaaggca	atgtcgatct	900
ctcgccacgt	agggtgctga	gcattgtagg	tcgcgcaata	tcacggccta	cggatgtaca	960
gccacggagc	gaatcgatc	ggattggctg	aaaccatccc	cgatttgctt	atcgtcagcg	1020
gactggcgtc	ggcgtcgatg	tcgcagctca	taaggccgct	ttggacaatg	gcttgccccct	1080
gtagctgtat	tggcccatgg	attggacagg	atttatccga	gcggtcacgt	tccattgcta	1140
tggagatgct	ccgaaacgga	ggcttgctca	cggattccct	atggggactg	aaccggagcg	1200
attcaatttc	gtcggtcgca	atcgctcgta	gcaggcttgt	cggacgccac	acttgtgatc	1260
gaatcggccg	aaaaggaggc	tccttcacga	ctgcgggact	ggcattcggc	tacaatcgcg	1320
aagactggct	ctaccgggac	gagccacgga	tagccgttcg	gccggctgca	atccttgata	1380
agggatcaaaa	aagccgcgct	tgtcagctcg	gctcaagatg	tctgacgctg	ctcgattgga	1440
gttctaccat	agacgccaaa	cctcagacat	gaatttccgt	cccgatagtt	ggccggatac	1500
ccccgtagcc	gaatgtcttt	cagagcaggc	acagcctcgg	tggacgagct	gacacgcgct	1560
accggactcc	tataaacgat	gtttctgctc	agcttttcga	cctcgaattg	gacggacggt	1620
acagtctcag	cccgggtggca	tatactccgt	tatataaatt	gtacgagaag	atgtctccca	1680
ccttggtccat	actcataccc	gtttataaaa	gggatgtcgc	agactgctgg	aggaactgta	1740
taagcaggcc	gaagaactat	ccgtggctac	gaaatcattc	ttggagacga	ctgttccggc	1800
gaaccttaca	ctttcaatat	atcgcttacg	aacaggaggg	actgtgccga	cttgctcagt	1860
ccaagagAAC	atgggagccg	gccgtctcgc	caatcgctta	gcagaagaag	ccaaggcgag	1920
cagctcctta	tcctcgactc	cgataccctg	cgggcattac	cgacttcata	gaacgctatc	1980
tgcgacatgc	ctccggcaca	acagtcgtag	tggagggttc	gtctaccgcg	ccaaatcgac	2040
caatccccct	cggcaacgta	tggcgccgaa	gtggaaagtc	gatcggcgga	agagcgagca	2100
cgaaaaccca	ctccggattc	atctcaatgg	ctttcatgat	cccaagaaaa	cagatgttgc	2160
caccggcttc	cctcccaata	tgggtatggg	gtatgaagac	atcctttcgg	cgagcgtctg	2220
cgacaagccg	gcatcccatc	cctacatatc	gataccctgt	agaacattac	cactgcgata	2280
ctgccgaggg	atttttggcc	actcgcgtag	ctatctggac	aatctctatt	gtcaccgcga	2340
agaattagcc	gatttggtaa	cctgctcaga	gcatacaatt	tgctgaaacg	gctacacctt	2400
agcgaatggg	agctgctttg	tggccactga	tccgatectc	attggaaaaa	agctcacggg	2460
agctaagccc	tctctcctcc	tcttcagcct	gtataagctc	tatacgtagc	ctccctctct	2520
ttgggtgtgt	ctgaaaaaag	ctgatcctag	aaagatcaga	aaaagcaata	attatatcga	2580
aatgtttgac	ctcctctcga	gtgtcaactt	tttttcagta	cacgtcagtt	cgtaaaaaatg	2640
gcgggttagcg	tttggaaaaa	cgtggctcgg	gaattttttc	g		2681

(2) INFORMATION FOR SEQ ID NO:1111

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 601 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1111

```
gtcgtatccg aacaattggt cggagccggt ttcaatgaga tactcaacat tcgcttacgg      60
ccggttctta ttacgaaggt cttaaagagcc atccgagaag atggcagtg agctgatgaa      120
tccgctgagt caggagctta actgcatagg cagactctgc tattcggagg attggagacg      180
ctcagccaca acctcctcgt aagcatctct ccctctatct ctttgaatgg ggtaaagtct      240
atcgctccat gccgcaaagc gcacggacga gactcccctt gcggcctatg cagagacgat      300
cgcttcggca tttggatatg cggacaacgg gtgcacaata gctggcacac cccgaagaac      360
cgacttcggt atttgaactg aaagctgtgg taaacaggta ctttgccgcg tagggatcga      420
aaccggagct tatacgtgta aacagctgac aatgatctgt acgcatctgc catggagggtc      480
aagactcgtt gggcaaaactg ttgggtacat tcggaacggg atcaacggaa ctgatcaaag      540
cttcgaaatn gagcaaccgg ttactttgcc gaatgctttg ggatgcccc a tgagcgaatc      600
g                                     601
```

(2) INFORMATION FOR SEQ ID NO:1112

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 848 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...848

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1112

```
ggccgaagcc cagtacaata tggctcgcaa cggtgccgaa cgccaagaca gctggcagct      60
tctgccctcg tcgatagagc gagaggagcc gtcgccgagt ggagtcgtac atcaacgaaa      120
cctacctcat gcggccacgg gcaggcgagt gtcggagata ttccccaag cggcggaact      180
cgtaggtacc ggcgcaactat catgaatatc gccgagatgg gcgatatgtg ggccagcttt      240
gccgtcgtga ggatttcctc agcagcatga ccatggggagc cgttctggag actgggtgcc      300
ggctctgaat gaagaaaaag tacgcttcaa gatcacattc atcagaacat ggggtacctat      360
gctgcctgga aagcgaccaa gacaacaggg catacgacct gaagaccttc gaggtaaagg      420
ccacccttgc ggataaagac aggcacaaaa gctacgcccg ggtatgtccg tgatcatacg      480
```

caagtaacga gagcagtaag gccatgcacg ggacagccct tatagccacc atgcgtagaa	540
ggtgcgacaa ctgacgagtc gcgtcctctt cctcttctgc atggtgatgc tcctgtcttt	600
tgctgtctct tcttccccctc catcatggat atgggggtgcc gcagaacctg cctgcgggta	660
ttgtggatct cgatcgtaca cagacgcgcg caccatagca cgccacctca attcgatgga	720
gcaaacccaa atcgtaaaca gttcgaaggc tgcgtgaggc tcgcttgagc tacagcgagg	780
cgagtatcgt actactatat acccgaggaa tgacacggat gcctacgcac agagcagcca	840
agctctct	848

(2) INFORMATION FOR SEQ ID NO:1113

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 303 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...303

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1113

aaaagaaaca aaaagatatg tcccatttgc caatccatag aagttcgcac tcaccgattt	60
tggagtctat ctgaagacaa ttgtatctaa aacatctgat cttcagacag atatgccttt	120
tctcataaccg acgactatta tttcttcgct tcatagaggg ggggcaatgt cgtctgaata	180
ttgatttcaa ggaatgactt ttcgaaaagg atagtctggt tatcattcgt ccgggacagg	240
tacatgcatc attgatgctt acaatcttcc ggcaaacttc cttattattg actctattgg	300
taa	303

(2) INFORMATION FOR SEQ ID NO:1114

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 507 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1114

gcaatttggga	caaatacacgc	atgaaaaaac	gttaacagcc	attatttcat	cagttacgag	60
tgcaagagca	aaaattgaca	attttcacct	gaaaatgttg	tctgaagagt	gtttcaaaaa	120
attacaaaaa	tgtttttcag	acgagaccga	acagccgaat	acgtgaagca	ggggattatt	180
tgattacctt	tgaacacaga	aacttagctt	tgacaatata	tgattacagc	cgaacgttat	240
cacgaattag	catgggacac	cgcgtagtgg	ggcacgatca	caagtgcaga	catcgcatgg	300
acacaactat	cgtatccact	ttatttgcag	tgcaccggct	cttattcgat	cgggcgtgta	360
gtcgatttcg	gtgttatcaa	agagttgcta	tcagtggtg	tgaagatcat	tgggatcaca	420
agatgatgct	atggggagcag	gtccgttgct	tcctgctttg	cgtgcgactg	tgccggacga	480
tctggttgca	taccgttcaa	tcccacc				507

(2) INFORMATION FOR SEQ ID NO:1115

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1866 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1866

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1115

ggcggcgaa	tagtccgaag	ccgaggggat	accgctcgct	cctccgtaaa	aatctccgaa	60
ggcaggtcgg	ctccgcttcg	ggtcatttcg	tcgaggaatc	atcgatgagc	gagaaggcgt	120
ccggctcctt	ttcgcccgag	gcgggttcag	ctgctccgga	tgcgtatatt	gctccacgag	180
caggtacagc	ttgcgctgtc	cggcagatag	ggtgccagcc	ggcgcagctc	cgaagcatag	240
cgcactcctg	caccacatac	atattatata	ggtataggaa	gacgaagggtg	gagcgtaggg	300
ataggcctcg	tacagggctt	tcattctcggg	cagcgtgtca	gccaaagccg	cagggggtgc	360
tccatgtagg	cgtacagatc	gtagtcgtc	atgtggggga	ggattaccag	ttctctaccg	420
tagcggtata	cacctgcttc	acaagtcgtc	gaccatattg	gccagcaggg	ggtcttgtac	480
gtcccaccagc	gtcgcgtgct	gtcgaagtcc	gtggaagacg	taaagtcccg	atcgaagttt	540
gttcgggagg	ccttgttctc	gtagtgacc	tgtatggata	aggttacctg	gtgcgtgcgg	600
ccagatcggt	gtcctgtacg	gcgaggggag	cgaagtctaa	ttagtgatga	ccacctcgat	660
gatcatgtcg	gcacgttggt	ttcgtgcatt	tcgagcttgg	tacggcgcgt	aaaatggttt	720
tggagggctt	cggctctagc	tgcgccaacg	ggggatatac	gcgggtggcc	tgattggtca	780
catcggcata	taaagcggtt	tgatgcggct	atagtccaga	gcacctccgt	tgagctgtag	840
gagatgctgc	atgccgagca	ggtcagcagg	acgataagca	ccccgcaaga	gcggaaaaggc	900
tgtatcgccc	gaggggttcta	ttccagttcca	tctccttgat	tttacggta	agtgtccgct	960
ccgaaatctt	cagttcctcg	ctgtctgctt	gcgccttcgg	ccgtggcggt	cbaatgcaag	1020
ggaaatcatt	tcttctctac	ctcctccagc	gaaaccggat	cctcgggtga	ttcgttggtt	1080
cctgtatcgg	ctccacgggt	tctgcccgct	tcgcgatggg	ggccttggcg	tgctgacgcc	1140
ccacttcgga	tctgcgggtc	gcttgtcgtc	gttgcccaga	cgtccgacct	tacaggccat	1200
gagggtcgtt	cgtgggtgcg	caggcggttca	tcattcccctt	caaatacggt	atctctttct	1260
tcatatcgta	tagccctggt	agatgatttc	gcgctcgtaa	tgggggattt	gtttgtccgc	1320
ttcgtcggtt	cgttccgctg	gatcacgacg	gggtggagggt	cttgcatccc	ctagcgtcca	1380
ggtagcgagt	gatggctctt	gccgataccg	tccgctcctc	cccaggatgc	tcagcctgtc	1440
ggttatattg	cgcagctctc	gcacattgcc	ggccagcggt	aacgcattaa	tatggtagcg	1500
gcttcgtccg	ataggcgcac	ggaggcatcc	gatacttctc	ggcgctgtcg	gcggcgaaac	1560
ggcgaaaagc	aagggcacgt	cgtccgggtc	catacgcagc	gcaggcacct	cgatcggacc	1620

gtattgagcc ggaagaagag gtcttcccgg aacttcccgt tcgctacgcc tccttgaggt	1680
tcacattcgt cgccgctacg atacggacat ccgtctctgc gactggctgg ctcctacggg	1740
gatgaactcg cccgtctcca gcacctcagc agcctcgctt gcgtgggcaa aaggcagttc	1800
gcccacttcg tccgaaagaa tcgtgccgcc ggatggcttc ttcgaagtac cccttgcat	1860
ccgata	1866

(2) INFORMATION FOR SEQ ID NO:1116

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1116

atccccggcg atacgctttc gtatatccga ctgtttgcga tcggactcag ggctctatcc	60
tcggtggcgt attcaatacg ttggctacgg atatgactct tctatgagta ttgtacctcg	120
gatcatcgtg atgctgatca ttttgctatc ggcatggtc tgaacttcgg tcttacgatg	180
atcagttcgc ttgttcccc attcgtttga cattcgtaga gttctataag aacagcgaat	240
ttgaggaggg ggcaaccagt acacaccgtt caaacgctcc taaatcacia aagacaattc	300
aaaaaaaaatca taacaactaa acaacacaaa agtattatgg aacaatgta gcttatctcg	360
gtattgcatt gatggttgca ttgaccgcta tcgaagtgcc attggcgtaa cgatctgcgg	420
taacactacc gttggcgcaa taagaagaac cccgattcac tgggtctcta catcggtctt	480
agtgtctttt cgagttcaca gggactctat gggtttcgtg ggcttcttta tggcattccg	540
cttgatcacc aaattg	556

(2) INFORMATION FOR SEQ ID NO:1117

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2307 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2307

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1117

gggcgtacca	ccacgacgca	gaggtatctg	tgccgcccac	tgcttcttcc	ttcttcgcta	60
agcacggcag	tcatatcggt	gatgataaaa	cccgggtgcat	cgcattggca	cgcacgccac	120
gtgagcccag	ctctttggcg	acactctggc	caaaccgatc	ataccggctt	tagaagctga	180
gtagttggat	tgctctcatt	gcctgatata	cctaccacag	aagccatatt	gatgatactg	240
ccggtcgctg	tcccatcatg	atggggagtc	acgggcattg	gatcatgttg	aacgtgactt	300
cagattaacg	ttgatcacgg	catcccattg	ttgctcggtc	atagcatcat	aaggccatcg	360
cgagtaatac	cggcattgnt	cacaaaaata	tcatccgacc	gaagtcagcc	ttgatctggt	420
ccaccactgt	atgtngctgc	acgaaatccg	ctgcattgga	agcgtatgcc	gctgcacgta	480
ctccgagccc	ttgagttctt	ctacgaaagc	ctgtacgccc	tcatcgatat	tcagatcaga	540
atagccacat	cggcaccttc	cgttgcatac	ttataagcta	tggcacggcg	ataccgcgtc	600
cggctcccgt	aatgagagct	accttgttct	ccaataattc	atactttgat	tttaattagt	660
cgtggacaga	tacctaccga	tacgattgta	tgctccgcga	gtttatttat	tgatcgttaa	720
attcttaaac	actttacttc	caatctcttc	ttcaccgctg	tttactgccg	gagagagaca	780
gatacgtgga	agatcagatg	ctccacattc	tcaatgattc	gctcgaacgc	gatgttccgg	840
catgcctaag	atgtccgctg	atatacggca	cttccagccc	ctgattgagt	ggagtaagat	900
cttggcggta	atatgggtat	cgggtataga	aacgcattaa	gccgaacacc	ttcgtccaaa	960
atggaacaga	tcagatgttc	tccttgaggt	cgaactcctt	acgagcagtc	tccaccttcc	1020
atatacacca	aaaaaatcgg	cacgaagcgt	accattgcgc	acgacaatct	ctttgattct	1080
tccaaatgcg	tatagatgaa	gtgcatcagc	ttcttagtcg	gcggcatgac	acgagagcag	1140
cagtctccaa	cgagctgtag	agttcgtcca	gctcctatgg	acaacggcaa	aatagatatc	1200
ttttttgctt	ttgaagtaag	tatatgcgtg	cgctcgtccct	tgtttgccgc	atcggcgatg	1260
tcgttcatcg	tggtttctcc	acaccgatct	tggcaaagag	ctgacgtgct	acatcgatca	1320
tcagttctct	tgttttcgcc	acactcatta	aaatTTTTcg	attgccctat	atctatacgg	1380
cattctgttt	cggaacaaat	ataagggtttt	tggcgttgat	ttgcacgttt	gtttcagtat	1440
tgagcaaaaa	agtcaccctg	cttagcctgt	tattggcctg	gacggttcta	tccattatcc	1500
aagaaaagt	cgatcgaaaa	aataaaaaag	ctgtctcctt	tgaaagggga	cagctcatcg	1560
atcattctgt	tgtctcacia	ggattcgaac	cttgacaaac	aggaccagaa	tctgttggct	1620
accattcac	catgagacaa	tggcgaagcc	tttattgctt	ccggtgcgca	aatgtacacc	1680
tttttgtgaa	acaaacaata	aaaacacatt	tggatttaat	tggcatccat	atcttctctc	1740
atagagtctg	attttgaaaa	gatggttgga	aatctcgatt	ttaggttcgt	aaaccggaaa	1800
cacggtcaag	atatttagtc	aatttttctg	tccgtttttg	tacttttgcg	agcgtaaaga	1860
ccaaaaaggt	catacatcag	catcaaaggg	ttccatctca	ataaacatcg	agaagaatat	1920
ccgcaacttc	tgcatcattg	cacatatcga	ccacggcaag	gtaccttggc	cgatcggttg	1980
ctcgaatata	ccaacaccgt	ctccggcaag	atctgcaaga	tccagggtctt	ggacaatatg	2040
gacttggaac	gagaagaggg	tataacgatc	aagagccatg	ccattcagat	ggactatgag	2100
atggatgaga	aaagtatgtg	ctcaacctga	tcgatactcc	ggggcacgtg	gacttcccta	2160
cgaagtctct	cgctccattg	ctgcttgcca	aggggcattg	cttatgtcga	tgctgcccac	2220
gggatacagg	cgcagaccat	atccaatctc	tataggcgat	cgaaaacgac	ctgaccatca	2280
tccttattgt	aaacaaagtg	gattgcc				2307

(2) INFORMATION FOR SEQ ID NO:1118

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 928 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...928

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1118

aggaaaccgg	cgaccgcaag	cctgtgaact	atgtgcttcc	tccgggcggt	tgcgttcact	60
cgatccccag	caagcacaga	gtactcagca	aaacgaacgt	ccatgagcct	gaaagtccgg	120
acactggcac	cgggcgatgc	acgggcttat	ataagaacac	gggctacgac	ctgagacgtt	180
ataagcgttt	gcagatttta	cgcatgccga	acgccttcag	gatgaagacg	gcacgcatac	240
agggatggag	atctatccgt	cttcatccgc	ttggggacgg	actaccggaa	caatattacg	300
aatactccat	accgttgcg	ctgactcctt	tccgtactta	ttcaccaata	gcgaaagcga	360
tagagaaacc	gtttggccga	aagaaaatat	gtcgacttca	aactgtctgc	ccttactgat	420
attaagacga	aacgcaacag	gagaaagcag	caggcaatcc	tgctgccgac	ttctatcgcc	480
ttttctccga	cccgaccccc	aaaacacagg	taatactgtg	agcgttatgg	gaaatccgaa	540
ctgagtgaag	tcaagactat	catgatcggg	attcgtaata	atagtactac	atcaaaaagcg	600
ccgagatatg	ggtcaatgag	ctcagactca	cggactagat	gagaaaggcg	gatgggctgc	660
caataccacc	atcaatatgc	agcttacgat	ttgggatcgg	tgaatatgcg	cggacagatg	720
ataaccgcag	gattcgtgct	ttggacgagt	ctctcacaca	gcgagccata	gaagatacgc	780
gtacctcaac	ttctccacca	atttggagct	tggcaagttc	ttccccgaaa	aagtcagatc	840
agcatacctt	tctattactc	ggtatcggat	gagaaagtat	ctcccaatac	aatccctttg	900
atcaggacat	tctcctgaaa	gatgctct				928

(2) INFORMATION FOR SEQ ID NO:1119

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 392 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1119

tctgcgtgcc	ctgacgggat	tggagcgcg	caagctgcgt	gcagagttca	agagatcatg	60
gcctccatca	atcatttgga	agctcttttg	gctgataggc	attactgatg	gagctgggtca	120
aaagcgaaact	gctggagata	aaagagaata	tggcgatact	cgcaaaaagcg	agatcatata	180
tgcttcggaa	gaattcaccc	cgaagacttc	tatgccgacg	atgatatgat	catcaccctt	240
tcgcaatggg	ctacatcaag	cgtacccttc	tgagcgaatt	cagaacgcag	gctctggcgg	300
agtaagagcc	aagggatcgg	atactcgcg	aagaagattt	ccgggannta	tatctactcg	360
gcctccatgc	acgccacat	tatgctgttc	ca			392

(2) INFORMATION FOR SEQ ID NO:1120

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1952 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1952

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1120

gggccgtgca	tgaagcagcc	ggcttcgccc	gaacatatcg	tccgggctac	gcttcggttg	60
tgatcgtagc	cgagagggtc	atatagccgc	cgggtcaatac	ttgccaaagac	acagaatatc	120
cggcacccgtg	gcagcgtgcc	ggagcgcgaac	agttcgcccg	tgccggccgaa	tccggtagct	180
atctcatcga	atatcacagt	acgccggctt	cggagcagag	tctgcgagct	tcgacgagat	240
accgggatag	tagaaataca	taccgccggc	tccctgcacg	atgggttcga	ggatagggct	300
gccagctccg	ccccctttgc	cgagaggagg	tctcggagcg	gcttatgtcc	gccggcagcc	360
attcgccacc	gaagcgactc	ttcggttgtg	gcggaaatac	tgtacgggca	atgctcccga	420
gaaaatgccg	tgcataccgg	tacgggatcg	catacgctca	tggcgtgcc	ggtatcgccg	480
tggtagcccg	acggatcgta	gcgaatcggg	tacgtctgct	ctgtccgcag	gcttgctgaa	540
ctgcaaagcc	attttcatgg	ctacctccac	tgccaccgaa	ccgctgtcgc	atagaagatt	600
ttattcaact	cggacggcag	gatgctcaga	agcagttggc	caattctacg	gccggggcgt	660
gggtgaaacc	gccgaacatg	atatggtcac	ctcccgaagc	tgccgttcta	cggcggcatt	720
cagtcgcgga	tggttttagcc	gtgtatggct	gcccaccacg	aactcatacc	gtcgatcagt	780
tcgcgccgtc	ttccagatag	atgcgtactc	cctcggcccg	cttcacggga	aatcgggcaa	840
tggtatctata	gtcgatgtat	agggatgcca	aagggtggtg	cgtccaaacg	cagcattttcg	900
tcaatgggtca	tagctttacct	cccagtcgtg	acgttagtca	cttgaaatcc	gcattccctc	960
acgagctgca	tatcctcagc	gctttgtctt	ccgtcgtggt	gaggagatcg	cccgtgatgg	1020
ctgcattgaa	cctatatata	tagctttgcg	ctgaacggca	gggcttagtt	gtgcccgtct	1080
cccgaaaagc	gaagaaaagc	tcgaggattg	atgagccgga	acagtgcaca	gtcgtgaggt	1140
attcctcttc	gcttagaggc	agagtcctct	ccagcgagtg	ccggggatcg	gctgcaggat	1200
attgatcggg	atggagtaga	cattgtgctg	tgcaggtaga	aagcaaattc	gatccgctgc	1260
tccatcgtct	ccccatgccg	atgattccgc	cactgcatac	acgcattccc	acacggcgtg	1320
cagtcgaatg	gtggcgagct	tttcgtcctg	cgtgtgcgta	ctgcacaggg	agggaaagaa	1380
ctcggagccg	tctccatatt	gcagtggtag	gtggtcaccc	cttgtcgaat	aatatctgca	1440
gtttctcctc	cgagagcagc	cctaaagagg	gcagcatttg	atgtccgttc	gttgcttgat	1500
ggcacgataa	ctttcggcct	ctgtcgtatc	tcgttcatag	acgcagtgcg	cccgttggcc	1560
acaagagaaa	gcgtccgatg	ccttgccgcc	tggttgtaagc	ggcctgctcg	gcacaaacgc	1620
ggccgaaaaga	agtcctgtatt	tctctatcga	agcggcataa	tggcggtttg	agcacaccat	1680
ttacagtctt	cgggacagtt	gccgtctctg	gcgttatgat	ggagcagggtg	tcgaacttat	1740
cgcccatgaa	ataccgggtg	atccatgtgc	agcctcgtag	agtgtctcct	tatcggcaga	1800
ggaggccagc	agagggttc	ctcaagggtt	agttcgccac	cgtttatcag	tctgttttcg	1860
atgtctgaat	catatatggg	aacgggagcag	atcctttcct	gtctgcatcc	ggacaaaagt	1920
agaaagaagc	tccggcaata	gaaactaatc	gg			1952

(2) INFORMATION FOR SEQ ID NO:1121

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 608 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1121

ccccgacttt	ttgcattaag	ttactaccga	caaagttagc	atccagtcta	gagcaggacg	60
actctgagca	tttgcaaac	cgattgttgc	gagcagcaag	tagctgccaa	aatcattttc	120
ttcatttttc	gttctttttt	gagttttttc	tacaatgtaa	cacactctct	ctcgttcaaa	180
agtatgccta	tacatacttc	cgatgcagca	aagatacaca	atgaaacgta	tctatgattc	240
aaatgaagat	ttgcacttat	cagggtggaat	ctgcaaacacg	cgaaaaaacgg	acaaatattg	300
gatgatataa	aattattaca	tacatttgca	ccgcattttca	aacaaaaaaa	tgctactaag	360
gctgaatcgc	tagctcagca	ggtagagcac	atccttttaa	ggatggggtc	ctgggttcga	420
accccaggcg	attcacgaaa	aaaaggggcc	atgtcaaaat	tcggtttttt	tgaagtacgc	480
ctcaaaaagt	ggatattaaa	ttatccttgt	gttatagaaa	gagtcaggta	caataccggc	540
tctttttcgt	taatcttgcc	ttaattctac	tatttctata	atnggtattc	ctccaatgca	600
ttgataaa						608

(2) INFORMATION FOR SEQ ID NO:1122

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 778 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...778

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1122

tcttttcttc	ctcctgtaaa	gaagatcttt	cactatcaat	cacatccata	acccacatga	60
agtactgtgt	gcactaccat	ggtgagaaac	tttaattaat	caaagatgac	tggttttgtt	120
tcacttttat	atactttttc	tatcgcatgc	tcacctgctc	cgggatctgq	atctcccata	180
agcagaatcc	gatgtcttga	tactcccaaa	taaaggcaat	agaagcgata	ttgttgatcat	240
ccatttcgat	aatggggcggg	atgcatatcg	cttcaatatc	tgttcattga	tcgttcatca	300
tttacgttct	catcttttgt	ctcctcgccct	tcttctagtt	gtgaattctc	atcaaagcct	360
catagatagt	ttcctcccca	tcatagtctt	ctttttttgt	ttgtacagtt	gttgccaaaa	420
tagcttttga	tattttacat	cagtctatct	aacgcaactt	gggaaggaga	aaggaaaaata	480
atcctcccca	attgttggca	agttgaatcg	caggagactc	atctgtaata	tattctcttg	540
ccaagccctc	ctccattctt	cttttctcaa	tatacattct	gccagggtag	cgccctttct	600
tcattgacat	tttgacttag	catatcaatc	acaatggcaa	ctgatcatat	aagcctatcc	660
acattcgctt	tcacttgctc	ccgtcctggc	tgctcattgg	taataaccct	ttggtagcag	720
ttatatatga	atatgttcga	ttataanggc	tggattttga	gttaagcatt	ttttatca	778

(2) INFORMATION FOR SEQ ID NO:1123

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 740 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...740

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1123

tgcgcaactcg	gcaatacgtg	acgggtgtgga	tggtctacttc	ggctatcctt	cactccgcag	60
tctgaagtta	tggaacgct	catggaggag	catccatgga	tacgaccggt	atgggtgtct	120
tgcaaggcaga	gagcgaagtc	gctgccataa	catgggtttat	ggcgggtgcca	gctgtggcaa	180
aatgggtgatg	acctctcttc	cagcccgggt	atgagtctta	agcaagaagg	agtgtgctat	240
tgtgcgggtgc	cgaattgccc	tgcttgattg	taaatgttat	gcgtgggggt	cccgtttggg	300
aaccatccaa	cccggacagg	ccgactattt	ccaatctgtc	aagggtggtg	acatggtgac	360
tatcgtctga	tcacattggc	acccaactcc	gtcaagagat	ggttgacttc	gttggtctgg	420
gactggagct	ggcattcaag	tccgcaatcc	tgcaactc	ctttccgacg	gtatcatcgg	480
tcagatgatg	aaaagggtgat	attgcctccg	ttcaaaaagc	gtcgtaccga	agatgaaatc	540
gcaaacaatg	cccgtgggca	actctcggtc	gaaaaggagg	tcgtcagcga	atatcattac	600
ctctctcgag	cttgattcgg	ccgttatgga	gcagaacacc	tccggcttcc	aaaagaagta	660
tcagagatc	gaagccaatg	aagttcctta	ccgaagagta	tcagacggaa	gatgccgact	720
atatactcgt	tgcatcggga					740

(2) INFORMATION FOR SEQ ID NO:1124

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 559 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1124

gatcgtgtac	acagtctcgc	tatgttggtg	ttcgatgagc	aatacaggaa	aaaagtngcc	60
gaacattttt	cttcctccnt	anggagcggg	acttctacta	tgtctttact	gtgaaattaa	120
aacccggaca	gcgcgatttc	tttttcgggc	aaattttcct	ggtatgcaga	ctgccatggc	180
ttcgatcgtg	aacaaaccga	tatgaatcac	tttatgcagg	tcctcagata	tttggaccct	240
attcatatct	caaagcaacc	aatgataatg	gattcccat	gtcgagaatg	tattcaatca	300
gacggttacg	atcgggggaa	ccatcactca	gcctttacca	ttcagccgga	cggagaaaac	360
aatgtgaagt	tgacgcgtgt	ggttgcaaag	ttgatgtgaa	tatcgtggaa	ggagtggaaa	420
atctgcagaa	gattgaactt	ttaattgctaa	tgtccactat	agattgggtgc	ccaaatcagt	480
cagagcctat	caagttttac	ggncccggta	gaactaaggc	gagtaggtac	cacgaaccat	540
ggctttggct	attatgccg					559

(2) INFORMATION FOR SEQ ID NO:1125

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 313 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...313

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1125

atgatggcta	ccggcgacga	agctctctat	gctcgactgg	aggcctatag	gagtcgctca	60
aagaaaaagt	cgtaaaggcc	aatcgcgagc	tggcagagtg	aagtacaact	tcaaaacgaa	120
ttaaagccct	gtcctgcccc	gttggtctcg	gcacaaaaaa	gatcggcagt	ctatagccgt	180
ggcttattta	tgagccctat	cggctgtagt	ctgcctttct	ttttctctat	tatcttttcg	240
aagtatgtga	agtcgttccc	gcttcgaatc	ggcaatccaa	agaatatagc	aaggctatgc	300
tcgatctgtc	gga					313

(2) INFORMATION FOR SEQ ID NO:1126

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1126

tcgaacagct	gaagcattgt	ccgtacgtct	tcgttttggc	attcgtccta	tcacgtttctt	60
tgaagagttg	ctctgctgcg	gcaaactcct	cgggcgagtg	gaacccactt	cttttttcat	120
acgctccttg	gcctcttcaa	gtgtcagtga	ccttcgcgat	gagcctcttt	gatgtcgagc	180
atacgctcca	acttactttg	tcgaggctgt	caaaagtctt	atttgttttt	atgacctgca	240
tggttttgag	caattagtga	tgaataacaa	cctcctcgca	gcttatcaaa	agctattgtg	300
gaggtatata	cactttcgta	aatataacaa	tctcagaata	tattttgttc	tggtttttca	360
tcgaggaaaa	aagtgcata	gtcattacg	cccaagcagg	atacgagcct	gaaatgctcc	420
gattgtgggc	tgtgttttgt	gaaagcaggc	gcgagatttt	tttcgttttg	gtttcacttt	480
ttttcttttc	cacgccaaaa	gcaaaaagtt	cacgtgccac	acttttgggt	gtcataaacc	540
gaaaatttag	gcgtgtgaac	ccaatcggat	agggatgata	catcctatgc	tgaatcgga	600
gtgaatatgg	tgcaaaaaaa	gagggacagt	gc			632

(2) INFORMATION FOR SEQ ID NO:1127

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2267 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2267

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1127

gcgttctact	ttggctttga	atataggcaa	gcgagtcaac	attggtaaca	tgtggattat	60
atctacagca	acggttttcta	caactccaac	aagacgaagc	catctcctac	cgttttcttcg	120
gcagctaccg	ttccgaccgt	tacgaagcta	tgcttatgtg	ggcaacaatt	actatctgat	180
gacggagaat	gggggggttac	gaatgatgac	tacgtgatcc	atccgggtaa	ttttgccaat	240
ggaacaacga	attcgtatcg	acggatatcc	cggtagaatt	tcccggcaat	aatagttcaa	300
ttcgtttcgg	caaggaaacgg	ctcgtctgac	ccatcgctac	aactcggttt	ctatcgtgag	360
ggacagaccg	agtattatga	tggcaatgaa	ttgaggctcc	tcatttgatc	gatacgatgg	420
tattcgtgcc	cgtgggtagt	attcccacac	tttcaattat	acaaaaagtc	gccgtcgctt	480
caaggtaaac	atccttttga	caattcgatt	tatcccaatc	tgtttatcaa	acgactgaag	540
atgccggaga	gatgatcacg	ctgccgaacg	acaccactcg	tatggaaggt	accacaatac	600
gctggctctt	tctttgcggg	aaggtttcca	tcgctggcta	agttcggcct	gacggcttat	660
gtcagggttg	agaatagggt	ttataacctac	aagattcagt	agtcgggtga	ccccctacgg	720
acagggagtt	cagcattatg	tcgggggaga	gatcagccga	cgagggggga	aatatctcaa	780
ctttcagccg	atggagagct	ttcggtcgtc	gggagcgatg	ccggagcatt	caactcagag	840
gacgattaag	tacagcgttc	gatctccttc	gtcgggaagac	ggaatggaag	cttggggggca	900
actttctaat	actcgtccgg	gctactttct	ggtcatcatc	atgggtactgt	gcactgggtg	960
gacgaatacgt	tcgatttcat	cagcaactca	gatgggtggc	tctcttcgtc	tgaaggactg	1020
gggtacgact	tgacgttgca	atccgctacg	ctcaagaact	atatatatatt	cgaccatagg	1080
ctttccccca	acaggtctct	tctcccatac	aagtcctcga	agggcggtag	cacatgccta	1140
ccgatggggg	gctttgggat	gggaagtggg	agcggctatc	aaacaagtag	caaccgtacg	1200
gctttgcctt	taccgaagct	ggcgggttat	gcaatctcta	tttggacttc	cgctctgccga	1260
gcagtaacca	ggtgtgcgta	tacagacggg	agtggatgct	cgcattcatt	cctcctacta	1320

tgccccgtatt	ntgaacccgc	cgtacagcaa	ttcaccacgc	aacaagagat	aaggtgggag	1380
ggtctttccc	tctgatgaat	gcttatgtga	atatccacct	cagcgctcac	gtttcttctt	1440
tgaaatgtac	aatctggctg	aggctttcat	gatagcaagc	gtttctcttt	ggtgcatacg	1500
ccgtacaacc	ctcgtggctg	cgtatgggta	ttgccatcga	cttcaataaa	taaattggaaa	1560
tgaagaaaag	attgctctct	acggcgtttt	actgatctct	gtccttatcg	tgatgggtgct	1620
ttgcgccact	gtgggtggagg	aggggctgcc	ggtgggggacg	ctgtcgttcg	ttgcgtgatt	1680
atcctgatat	tcaccgagaa	ggagtgtctga	ggatcttgcc	cgatacaatg	acagagacta	1740
ttatgtggga	caggattcca	ccgcggtttt	gtttacgatg	tagcacgtcg	tttatcgga	1800
atcagtggca	ttcgatagaa	atcgggtctgg	aaaagaattg	gaaagagagc	cttgaaagggt	1860
tggacgggggt	gcatgcgaca	tcattgcaca	ggacattccg	ctgacggctg	tacggacacc	1920
gtccactacc	gctttcttcg	tccgatacac	cttggacggc	ttatctggta	caacgtcgat	1980
ccgatactgc	tctgattcgt	cgccagatca	tttgtccgga	cggacgggtga	ccattccgga	2040
aggctctccg	gcgagggtttt	cgtcaaacac	ctgtccgagg	aaatcgggga	tagtatatat	2100
atacgaacga	tcccacttat	tctgcagagc	agttggccat	gatggtggca	tcggacacat	2160
cgatctgacc	gtctgtaacc	aacatgaagc	taagaagctg	gggcactcct	ccctgcgttg	2220
gactgcagtg	taccgctctc	ttttcgaact	gcgaaggcat	ggttggt		2267

(2) INFORMATION FOR SEQ ID NO:1128

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1794 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1794

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1128

cccctgggag	agcgatgaga	aagaaaagct	ctcggatgaa	gaaaaacgct	tctgtataat	60
tgctatcggg	gctttgtcga	tagcggagca	ctactcccac	agagaaaaaa	gaccggctgc	120
gtaccctgtc	cgaagagatg	agtatggctc	attgacattc	ggacagaatg	tgctcaagga	180
cgagaaaacg	tacaaatcca	cctcagcgat	ccggcggctg	tggccgggat	gcccagacg	240
gctctgctct	cgcttcggag	aaagcccggc	gaaagggcta	tacggagggt	tggctttcga	300
cctttctgct	ccgagctact	ttgcttttat	gaagcattgt	cccatgggaa	cctgcgccgg	360
cagatgtatg	aagcgaaaat	gtgtgtcggc	ttgtagacaa	tgagtataac	aacgaagctc	420
tgatccgtag	aatggtaaac	gccgtctcga	ggaggcacaa	ctcctgggtt	acgatacctt	480
cgcccacttt	ctcttcatga	caggatggcc	aagaacccca	aggcagtcca	agaactactg	540
acaaactact	ggatgcatac	aagcccaaag	cgacagatga	attggagaga	tccgcaaattg	600
ggcttgccga	caagacatcc	gaagtcgata	acttcacata	caaccatggg	attgggcata	660
cttctcggaa	cagtacaacac	aggccccctac	gatctggacg	atgagatgat	gcgcccgtag	720
ttcgaattga	ggcgatcacac	ctgggtatct	tcggcttggc	caaccgactg	tacggacttc	780
attttccgaa	cggacgggatg	tgccgggtcta	tcattccggat	gtaaagggtgt	acgagtatcg	840
gacgaagacg	gctcttatat	cggctctgctc	tacacggatt	tcttccacgc	gaaggcaagc	900
aaacggagca	tggatgaaca	acctccggga	cagtccgaac	atcagcacc	gcacatcatc	960
atcgtgatga	acttcacccc	ccttcggcgg	acaaaccctc	gctcctgaca	gcaggtgagg	1020
tggagacttc	ctgcacgagt	tcggccatgc	cctgcatggc	atgctgtcca	aatgccgctc	1080
agctccttgt	ccggcacctc	ggtagcccgt	gacttcgtgg	aacttccagc	caaataatgg	1140
aaaactggct	gacagagaaa	gattttctcg	acacccttgc	cgccattata	taacggacga	1200
acctatgcct	accgaattgg	tggaaaactc	ctctcggcac	gaaattacct	cgcagcaagc	1260

ggtgcatgcc	gtcactcagc	ttcggctatc	tcgacatggc	atggcatgga	ttgtctgctc	1320
cggggatgac	aaattagaca	tcaaggcttt	tgaagaggct	gcttgggtcaa	aactcttatt	1380
ctacctcctt	cgcccccgaa	tgccgtgatg	agcacggcct	tggtcatata	ttctcgggag	1440
gctatgcagc	cggatactat	ggttacaaat	ggcgggaagt	ctggatgccg	atgctttcgc	1500
agctttcaag	gaagtgggtt	tttcgatcgc	gaggtagccg	gtcgtttccg	ccgtgagata	1560
ttggagaggg	cgatacggcc	gatgccatgg	agctgtatgt	agctttccgt	ggacatggcc	1620
ggacattgct	cccctgctga	agcgtaccgg	cttggtttag	cctcattatg	cggtctcaat	1680
accacgtaaa	acgtaagccc	gaaagcgaca	cgtcgtttng	ggcttacctg	gttttantcc	1740
tggttttgga	aacctgtgtc	ttgaatacan	gggatatgat	ttactggcga	atgc	1794

(2) INFORMATION FOR SEQ ID NO:1129

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1366 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1366

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1129

ccggggccgat	gctttcagct	cgtcttccga	ttcggaaacga	gtagcgcgct	ggtgctggcg	60
atccctccgc	cgcgctccat	gatactcatg	tagctgtccc	ggcgagccgc	catttggaaact	120
catcttccct	gtagccgccg	aagacgaatg	ggtgtggctg	tccacaaagc	ccggcagtac	180
gcagcgtccc	gtggcgccag	ctcccggcag	ccttcgggtca	tggacggggc	tacgtccgcc	240
atgcgccggc	gaaggcgatg	atgccgtcgc	ggataactac	tgcggcaggg	ccttgatggt	300
gtgtatctgc	cccatggctt	cgcggccgtg	tttggcttcg	gagcttggca	ggtgacgaag	360
ctgggcgata	ttcttgatgt	agaggttcat	tgggtggggg	tgttaggcat	gtgtgtcggg	420
aaggaaagctt	gccgatagaa	cccaccacgc	cacccggaag	aggggtggcgg	gtggatatctc	480
tatccttcaa	caaaaaacat	gctgacgttt	actccatgat	ccgtgattcg	aggatctgac	540
catggagaag	ttttcgaatg	cgaggtagta	ttcggcacag	tcgatcaggc	ctgcatgggt	600
acgagtcga	tacttctcgt	gcctacgacg	gatacgcgta	tcgggcggct	tccatgcgta	660
ccatctcatg	agcgcgatag	acagcctctt	ggtgaagtcc	gtcagggttca	tggacacctg	720
cacgatgccg	cggtcgtaag	ctctacgcc	atggccttgc	agaagcgcag	accgccgccg	780
aggagcgtag	cttcttggcg	atggcggtccg	cgatggagag	gtcgttcgta	ttgggttcac	840
ggtgtaagcg	acgagcggca	tgcggggcgcc	gactgccacg	gtccggctgt	cgggtgacga	900
tcggccggggc	cgaagtccggg	atgccagtcg	gttcgtgtat	cttctctgcc	atgccttcga	960
actcgccttt	gcggatcttg	ccaggttttc	acgggtggga	gcggtagccg	atttctcata	1020
gaggaatacg	gcacgccgta	cttctcgcct	atcgtgcggc	ctacctcctt	ggcgaggggt	1080
cggcgtcttc	ggcagtcaca	ttcttgatgg	ggataaaggg	gatcacgcca	ctgcgcccat	1140
acgggggtgc	tgacctgtgt	gtttgggtcag	gtcgaatagt	ctacggctat	gccaacggct	1200
tcgagcactg	cctcccgaag	gggctggggt	cgccactac	ggtcacgacg	agacggttgt	1260
gatcctcatc	gttgataggt	tcagcagctt	gacgccttcg	cgcgtgcgga	aggggtttac	1320
tatttttcga	ttttctcttt	gtcgcggcct	tccgagaagt	tgggca		1366

(2) INFORMATION FOR SEQ ID NO:1130

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1433 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1433

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1130

ggaacagccc	aaactgaatc	cacatatacc	ggatatgcag	cgtgtcttgc	tgaggtgata	60
caggtggagg	tgtcggatat	ttcactgaaa	gccacaacac	ggagaaactt	ggcttcacag	120
gacgagagga	aggcatttcc	gcctatgcgt	ggccttgctc	attgctgccg	tctgagacta	180
accaagtcct	aaaagatagt	tgcaaagagg	ttcctttctc	tcaaggattt	ggctcttatt	240
ccttaacagc	tctttttccc	cctttttcgg	gggtattatt	ttttcaggag	gggagtagcg	300
gcttgaccag	ttgccagatg	acgattcccc	ctgtgacact	tacttgagcg	aatgcttcgt	360
gccgaactgg	ggtatctcta	agcagaggtc	acgaggtcga	tggcttcctg	tcgtactcct	420
tttacttcat	tgccaaagat	agggcgtagc	gtgtgccttt	tgagggggag	aaattttcca	480
aggataggct	ccttccgcct	gttctatcgc	acagatacta	tatcctttgc	tttcaattct	540
ctattgcata	cactaccgaa	gagaaatact	cccatttcac	actgtcctgg	ctcctaaagc	600
tgtcttgtgt	atgtcgggat	gaggtggccg	agctgtgttc	cgcacaagca	tagcccttct	660
aaccgaaaag	catcggccgt	tctaaaactg	acccgacatt	gttcatacta	cgtatatcat	720
ccagtatgat	cctgaaggta	gcttggggct	ttcgtgatat	tcttctgttt	tgagtcgctg	780
tattcgatag	tctttttttt	gcgcatgtct	gttgtctggg	cggattgagt	gatgggtgcac	840
attccattat	caaattgcaac	gaatttctaa	atataggatg	aaaccttgaa	tggcgttctg	900
aagttcagtt	tttttcgagt	gcagatccca	ttataagtg	aacataattg	taaatttagc	960
aagaagcact	cgaacggcgt	ctgaatccga	gtttctttct	tggctgtagt	tcagtttggt	1020
ctgtataatg	aaatctgttt	ggtcgttata	tcgatgaaag	aagaaccttt	agggatgttt	1080
gtctaatacag	ggcatttttt	ctcctcacag	agcaaaaacc	tcttgttaca	cgagaccgaa	1140
aagcagctca	agtaaaagct	gtcttggatg	cattagtaga	gtgattttct	atctctgaca	1200
aaagtcgtcg	aacgatattt	agtgtagata	acgggaaaca	gttgtgtgtt	tgccgaaaat	1260
acgtatcttt	gcaggcaatt	gaggggaatc	ctctccgttg	ctatgaggat	tgtctcatgg	1320
tgtatggtag	cacaacaggt	tttggttctg	tttgtcaagg	ttcgaatcct	tggagacaac	1380
aacagagaaa	gggttgtatc	ggatagtga	acttccggat	tcaacctttt	ctt	1433

(2) INFORMATION FOR SEQ ID NO:1131

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 642 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1131

gcacttcgct	gaccaacaga	cctttttcat	tatagtata	cgtattcttt	gggattctgc	60
cccgaagca	aaagaaatcc	agtgggtcag	tctgcccttg	catcataatg	atattccaag	120
cgtgagatag	gtgtattcgg	atccattcca	gcatgaatac	ttccctcacg	gtcatctttc	180
cctcgtcatc	ataggttact	tgaatcgggt	gtcgagtgc	ggctctccgc	cactgaacga	240
gatataagat	ccacatgcga	tattcgcccc	ttggcatcgt	agtaaatgga	gtcctggatt	300
ttcttacc	attggctttt	atgtcacgag	cgatatagcg	gttttctcat	cgaagataaa	360
gtgagtatct	gcagactggg	ttgtggagac	ggcgctgtaa	gaagccactc	ggcattgtcc	420
ttctgcgcac	gattttgagt	cggagagagt	aaactcctcc	ggcaatatct	tctttcgaaa	480
aaggtttgta	gaagaattgt	ccttggtttg	gcccacggct	gcaaagaaag	caccgaagaa	540
atcaaagaaa	taatggttgt	ttttttcatt	tcaataatga	nttatntgat	tgtatgactt	600
aagacgggatt	cgacaatcga	cccaatctct	cttgggtatt	tt		642

(2) INFORMATION FOR SEQ ID NO:1132

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 838 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...838

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1132

tcacgaccga	agaatgccaa	aaccaaatta	aaaaccagaa	gaagattata	tcgtagttcc	60
agttaaagaa	ggcgagaaca	tcgaaagagc	actgaaacct	tcaaaagaaa	gtttgaaaaa	120
accggagcag	tacgcgaatt	gcgtgctgtc	aggcttttga	aaagccctcg	gtggccaagc	180
gcaagaagat	gcaaaagcca	tctacgtgaa	gcagcttcag	gttgccgaag	aataaagaag	240
aataatattg	ccgcagtctc	tttgcggtc	aagaggggtg	caatgatcga	gaccatctca	300
ttcacgacaa	tgaatgaaac	acccgacacc	atcgaaagat	tccctattat	ctacgctacg	360
aagttcacgc	gtcagaacga	accgtttgtg	acatgcacaa	gatttgaatc	gctatgccgc	420
tttcttcagt	gaacacacgg	ggaagtattc	gagccaagcg	aacgcgacaa	ggatgtcgcg	480
cgcgcttggc	cttctcttta	atggaagccg	gacaaaaaag	ctcttcctgt	cagggcagat	540
gagcgcgttg	aaaagctttt	acaaatacat	ggtcaaaaatc	gggcttatgg	gcaaagtctt	600
gtccgaatgc	tgaggggacc	gaagaaagag	aggccgcacc	tgttttcgtc	ccgaacaatg	660
aatggaaaa	agtgtgaat	aagccctccg	tgaagatgat	ttcgaggccg	tacgggacag	720
actgattctg	gagacctgta	tgaagtgggt	ttgcggcggt	ccgaaatagc	cactctcaag	780
acaggcggtg	gaagacaagg	ccggctgcat	tacgtatcat	cggcaaagga	atagagcg	838

(2) INFORMATION FOR SEQ ID NO:1133

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 756 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1133

gtagacccga ccaatccccga tctgcatgta ggagatctgg caccgcagcg tgtcagctac	60
ggccgtttat tgtgtggttt ggagaagctg ttccgatgta gagccggcca tcgaagaggt	120
aacacaggca gacattctcg ttgtcatggc acctctctca acgtttatcc ggctgccgga	180
ctgttgaatt atgctctcgc aactgcccc tctatctgat cgatccaaag cctgtgcgca	240
gcacccccgg caagacattc ggtatatcca tgctcctgcc acggaaggcg taagatgttg	300
cggcaagaac tccgtgatat agatcgctaa aaaaacacta acccaagaac ctgccatcgt	360
ggtggttctt ggggttaatt gtatttggtc gttttcggaa ggctaataaa cgggtttgtt	420
ttcggaggca aaccgaacat tagaatgacg atctcactct ccgtgaaaac acgaatagcc	480
ggtccggccg tcctactcct gaactgacat agaactgcgt atgccctttg cgaagatagc	540
ccatgatttt tcaaaagcca gttgggtcaa aatcgtaaag ggccagattg tccgttgtgc	600
gtgtgcccgt acagagccaa gtccacaccg gtcatcgcac gctgtcgagc ttgtgcggct	660
ggtgatcgag caggatagag gccttatggt atcnacatgt ggcataagct tgtgcagcgg	720
agcacggaat acattgtgct atcgtcccggt cctatc	756

(2) INFORMATION FOR SEQ ID NO:1134

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1206 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1206

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1134

agaagtcggt tggcttttgcg atacctttta aagaangcgt ctgcaatgtc agccatcggt	60
attctggatt ggtatgccat ggaggatatt atgctgttta atactcaa atncaaaata	120
cctccctata tccaatgaat taccaaacaa aatatacgcc aatcgccgtg caaaggctctc	180
aaatggcggt ttagcggttg aaaaacgtgg ctcgggaatt ttttcgtttt ggcgcgggaa	240

gtaaaaat	ttt	acgcgccaca	acggaaaaat	tctcgctcgt	gaatctcaga	aaaccgaacc	300
gcattccggc	caattccgga	accaaattcg	tgaggaaatct	gctacaacgt	ctgttcgacg		360
tatgcttaag	gcccaticgag	gtcaagccct	catgaaagtc	agaaacaact	caatcggatg		420
atcagtaaga	cgcgctgctt	gtagaacgta	ccttcggtag	tattcgacga	tggttctgtg		480
gcggacgatg	cgctaccgag	ggttagccaa	gacacatacc	cggaatatcc	ttgaagctag		540
gcctacaatc	tcaagcgtat	gccggggctt	cttgtgcttc	aaggcgcaaa	taggcgtaaa		600
acgccggcac	ctcgagggca	attgccctcg	aggtgcggaa	aggggactaa	tccccaagct		660
gcaaaacaga	cgagaatggg	caaaaaacac	cgggaacaag	cgagcagaaa	gaacagcctc		720
tttgtgcaat	gggtctatctt	gggattgata	gatgaggata	ttccccttat	cgtccttgtg		780
ctcctattat	ttttagttac	aggacaaatg	tagtgctttg	tgccggcctt	ggtgggtctca		840
gaatttgaga	aattcaagag	cagattccaa	tctcaaatgc	aacttttatg	aataaccgga		900
aataatacag	ctcaatccag	atcggccata	ttatcttcca	ggtagaatcg	ggaaaaatca		960
gataggattc	tgtccttgac	ttcggagttc	ttcccggggc	tttttcattt	cctcgcggta	1020	
ttgtttgcgg	ctttttccat	ctctcggcgg	agcttttccc	gctccttgcg	ccattcttat	1080	
tttgcttttt	ctgagccttc	atatactctt	ggtagtattt	ctcctttgct	tgcgatattt	1140	
tcgcatagcc	tccgagttgt	caggcttcaa	aacattcact	ccttgcgga	ataacgcgaa	1200	
cggccg						1206	

(2) INFORMATION FOR SEQ ID NO:1135

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1142 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1142
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1135

ttccaatg	tt	cttcgtcccc	catcatcatt	gtcagatag	cattctatct	gcgataaacg	60
cccaacacta	tcttgcgttg	tgggtcggga	ctatgaagga	ctttccgata	gagactgaat		120
acatgactaa	cggttcatat	aacgacttaa	aatatattga	acgctgtttt	gaatgtgtaa		180
atgcctcaaa	cctgatcgac	agaaatgtcg	ttcgacaaat	gaattacctt	tgttgggtag		240
ttatagagaa	aaaggcaatg	aatccgcccc	aaagactgct	tgtcattcac	cgcgccctgc		300
tccttaccgt	atcgaactgc	tcaatactct	gtcggcagct	ttcatacaca	tatctacttc		360
gaatttgcat	cacctataga	acagcgattc	gagcaggcga	actagccaag	cgtgttcact		420
ttcaaagcag	tgtacttcct	ccgccccaaa	aatcccggga	ttgaaaaact	ttcgtcccta		480
tgcgcctca	tggttcgcag	tcttcgtccc	gatgtcgttc	tctgtagcga	attcaatctc		540
tgacactgac	cctcactgct	gcctctcgcc	tgttcagttc	gaaaaccagc	tgtatgtctt		600
atgcgatgac	aatgaacaaa	tggcagaagc	agagctgact	acggtcgtgg	cctcaaacat		660
cggatgctct	cctatgtgga	aggcgtattc	tatgtgatag	ccgtgcctgt	gatctctatg		720
cctctcgctt	cgctagctgg	atagggagcg	attcgtttac	ctccccatcg	tacaggacga		780
aaagtgtctg	gccccctcta	tgaacaggtc	ttcggtatag	gccgggacct	gcgcatgctc		840
tcatttcctg	tgggtgctcg	atgatactgt	atgtaggacg	ctgtcagagg	aaaaaaacct		900
gccggcactg	atcgataacc	tttccactct	accgatgatg	ttcatctcgt	tattgtcggc		960
gacggccccga	tgcagtcagc	ctaataatc	aagtgcagc	tacaggccat	ccggaacgaa	1020	
tcataatttga	gggaaaaagg	aaggagcaga	gctttatgcc	tactatacgc	aggccgatgc	1080	
ctcgtattac	cgagcatgcg	cgaatgtttc	gttcggtcgt	aaacgaactc	tcatagcagg	1140	
cg						1142	

(2) INFORMATION FOR SEQ ID NO:1136

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2284 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2284

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1136

cgaaaaat	ttt	tacgctc	ggc	at	tttcagg	g	acatgaa	aca	ag	tttttttc	g	cgccact	tcg	60
cattttc	atc	tcgacc	acta	tccgc	ag	tcc	ggcga	ac	ctc	cgact	actga	ttttgt	tttcg	120
tttatat	ata	gagaga	g	actaca	gcgg	ggacg	atgca	ggag	tccg	gt	atgcata	acct		180
tacagta	gtc	cgaac	ggggc	ttgcc	gtaga	tcagc	tatgt	acaag	ccaaa	gtcaaaa	aca			240
aaggaca	taa	gaaaaa	acta	ctcgt	caaga	tgaaa	acaac	gac	cttttc	gtagag	gcat			300
gatgtgt	ggc	ggttgt	gctg	caagt	gtaga	gaaag	cagct	ctcgt	gtaca	aggcgt	ataca			360
acggc	attcg	cttctc	tggga	ttccc	atagt	ctacag	tggga	ttatg	ctccg	gagaca	acct			420
caccgg	aggc	aataat	gaag	gtgtac	gcct	cgccg	gattc	gagtgt	aagc	tctgac	aagc			480
ccaatc	ctta	aacccg	atag	tcccc	gtgat	atgaag	gagc	aaaaa	cgttt	ttccc	gtagg			540
ggaatgc	ggt	gtccg	gctg	tgcgc	atagc	gtagag	cagg	ctgc	ctccag	gtaga	aaggca			600
ttagcga	tgc	gaacgt	ccaa	ctcgcc	gaga	atata	cttct	gtatc	gggtg	acgaaa	gggt			660
aacttcg	gca	gaggat	ctgc	gcaaag	tatc	cgcag	catag	gattc	gacct	gatat	gtggag			720
gattcgg	agg	cagaga	aactt	cgccg	gcgcg	atgcc	atgga	agcag	cagaa	ctgag	acgga			780
tgaatgc	gat	acgat	catag	cttggt	ctgtc	cgccat	cctg	ctgat	gcttc	tgagc	taatg			840
ccgcatt	tcc	agatga	tgcc	ctacct	gatg	atgct	catag	cctg	cccga	tacaca	ttggg			900
caggaag	gac	tttcc	accga	tcggc	actca	acaact	gcgc	cacgg	cgtat	tttca	atgga			960
tacgctg	gta	tcgttg	agca	cactat	ctcc	tttttt	tata	gcctg	atagt	cctgt	gtttt			1020
ttccgcg	aaag	cccgg	ccggg	atgaag	ctcc	acctc	tactt	cgatg	cttcg	gccat	gatata			1080
cgcattt	gtgc	ctactg	gggca	aactc	atgga	aaagc	gtgcc	ggccg	aaacac	ggggc	aaagcc			1140
attcgtg	aac	tgatgc	gact	acagc	ggcg	gaggc	atggt	cgtgc	gcaac	ggacg	cagaga			1200
ccgtgat	gcc	cattgc	tgcg	ctcgt	gcagg	cgact	tcgtt	cgcgt	acgtc	cgggc	gagca			1260
gataccc	gtg	gacgtat	ctgt	gaccg	aaaggc	agcag	ctccg	tacaag	agagag	catgat	caagt			1320
ggcagcc	ctt	accgcg	agag	aaaga	agtcg	gctct	atggt	tttct	ccggc	acatca	acgg			1380
ctccggt	gtc	ctcacc	gtac	agtct	actca	cgtag	gcagc	gcacg	gtact	cgggc	gcac			1440
atccgc	acag	tccgcg	aggc	acagg	ccagc	aagcg	ccctat	ccaac	gtctg	gctga	ccgga			1500
tcgccgg	cat	attcgt	acca	tagtc	atcgg	gctat	ccatc	cttacc	ctata	ttatat	ggca			1560
actgacg	gag	cagccg	atgc	ttcgg	tctac	ggact	ctctc	gtgcc	atata	ggtgt	ctgtga			1620
ttgcctg	ccc	aatgcg	cactc	ggctc	tgcta	cgctac	cggc	tctgg	ttag	ggatc	ggacg			1680
ctcggc	acga	aatgg	tatcc	tcgtac	gcga	tgccg	agcac	tggag	cgttt	cgcta	ccatc			1740
gatgc	cggtg	tcttg	gataa	gacag	cacgc	tcacc	atagg	caagc	cgga	gtgac	cggtga			1800
tcgattg	ggtt	tgttc	ggata	ccgat	gtacc	gaaag	tacgc	cggct	gtctc	actcc	gccga			1860
gatctta	gca	cgcata	ccact	tgcag	ctgcc	at	ttgccgag	ccttt	gccga	aacgg	caggga			1920
cggagg	agct	gtcgg	aaagtc	caga	at	ttcc	ccggtcgtg	atcga	at	ttt	ccttcga	agg		1980
agagat	ctac	agagt	gggca	accag	acctt	gtcga	ggagc	ttggc	gcaca	gatacc	gacg			2040
gatata	aaccg	ctctg	tcgag	gatgc	agcca	tcctc	tattt	ctcac	gtgcc	cgaaa	gatta			2100
ttggg	acttt	ctgtg	tgacc	cgacg	aaactg	caac	cttcag	gcagc	agaag	tgctc	gacag			2160
cttcac	tcgac	atggc	attcg	caccat	ttat	gctga	ccggg	cganc	gcccg	aaaca	agcgg			2220

aaagcanttg gcttcgcaag ctggggtttg caggattatt cgtggcggca ttgatgnccc 2280
tcgg 2284

(2) INFORMATION FOR SEQ ID NO:1137

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1184 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1184

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1137

ccgcctccac accgacctgc acgaatgcct cggacatggc agcggacagt gctccccggt	60
gtaccaggcg atgcacttgg agaacacgcc tccacgctga ggagacgcgt gccgacctct	120
tcgccctcta ttttctggcc gatcccaa at gatcgaatta ggtcttttga ccgatccga	180
tgcttacaaa gccaacatta caaatacatg ctcaacggtc tgatgaccca actcgtgcgt	240
atcaacgagg agaggagata gaggaggcgc atatgcgcaa ccgtgcactc atagtcgcta	300
cgtcttggag catgccgagc ggccgggggc aatgtcgctg gtcgcgaaga gggcaagacg	360
gcactcgtga tcaaggacta tgaagcagtg cggcgatcat tgccggtttg ctgaccgagg	420
tgaacgcgat caagagcgag gcgactatac cgccggcaaa gcgttggtag agcgttatgc	480
cgtccacgtg atccgctctt gcacgaggaa gtgctgacgc gctatgccaa gctggatatg	540
ctccgtataa gggatttgtc aatcctcggg tgagaccgt atataatttg agggcaggct	600
tacggatgca acgatagaat acacggaagg ctatgccaac aaatgcttcg ctacagtgca	660
gaatatagct tcctgcctac agacagccgc ttttgcagga ggcacgaaga ttgcgctcgc	720
acctccgacg ggccgaggac gtgtactatc ggccagtatg cgtgagaaag gactccacta	780
cggctcaact ttggagtcac tcgcgaacat ctgctccgac tggctcgcac ggcgacgctt	840
ccgctccact ggccgactat ctgtggagac gcgatgtaag gggacgaaga tactcgccac	900
gatgatTTTT cggccgaag aactgactca tagcaggcaa cgagattgct ccgagaggcc	960
gacaacgtgg aacttcgcga caactgacag ccaatctgct ggagcgaatg cccgaagcga	1020
tccggagcac ggccgatgga tcgagagcaa agagactact cctgacatga tgacgggata	1080
ttgacgcttg cagccagatt ggttacacgc cggcatcttt ccggaagcgt gccggcagag	1140
aactcttaac actggccatt cttcattctt cttccgtgag gaggc	1184

(2) INFORMATION FOR SEQ ID NO:1138

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 549 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1138

gcgcgatgct	attttcagtc	gtcagcgcta	ttggggggaa	cctttcccct	ctactacaag	60
gagggtagtc	ctcacgcgct	ggatgaagat	cgactgccct	ccgattgccg	gaggtagata	120
aattcctccc	cacagaaagc	ggtgaacgcc	ccttggaaga	gctaccggct	ggcatacagc	180
cgaaggttat	ccatacaatt	gagcacaatg	cccggatttg	ccggtagcag	tgcttactat	240
ctgcgtatat	ggatccacaa	aacgatactg	cactcgtcag	ctcgatcggc	gaataatatt	300
ggcgtcacgt	cgatctatac	atcgggtgga	cggagcacgc	cacggacacc	tgatttatag	360
ccgcttttgg	aacaaatttc	tcttcgacct	tgtatcgat	gcgaagccga	acctttccgc	420
aagctggtga	atcaggggaat	gtccaaggac	gcttcaactt	cgtctatcga	atcaagaatn	480
ccaatacatt	gtcagctatg	gactgctcga	gcaatatgag	gtgactccac	ttcatgtagt	540
gtcaatatc						549

(2) INFORMATION FOR SEQ ID NO:1139

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1117 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1117

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1139

ggcaacggag	gattttcaca	atacattgag	agcaacctct	tcgataagct	tcgggaggtc	60
aaagaaacac	ctgctccgtt	tacgctgctg	tacgatctct	gcacccgtac	gggttcaaca	120
gggatcagat	acgggaggtg	gccacgtttt	ggacaatcct	cccggagctt	cttttttctc	180
ttcttcgcat	cgtctctacg	tgagagggat	cggtttacag	tacttccctt	atcgccaaag	240
atggagtgcc	ggaactgttc	ggccttaaaa	tcggagattc	tttcctcgat	ctgcggatgg	300
aaagcaactg	agttggcagc	gcggtactcc	tgccgatttg	gactggaggg	tctgcggctt	360
ccgaatacca	agctattgtt	gcctttggca	ttgtagaatc	tttacaggag	gagggtgggg	420
ttcgccgtcc	gcaacgaggg	gatcatattc	atccttacgg	gatgaaaggc	tgcaagacgg	480
tgaagccgtt	ctttatcgat	cgtcacgtgc	cacgaagccg	gagggaagag	gcttggtctt	540
ttgccaagga	acagaagtgg	tatggatcat	gggctatgcg	gctgatcgcg	attcgccatc	600
gatgagctgt	cggatacggg	agaatatctg	ctcttctttt	cgggctatag	agcttgctcg	660
atggcttttt	ctcttgcccg	ggagccttct	ccttcgcatc	catcaggata	aaataagcac	720
ggtaaaggcg	gagtaggtat	aggaatactg	tccattgaga	cgttcataca	aggatttgag	780
ttcgatatgc	gagcgggatt	ggtgaaatag	gggtgtaatt	cggaaacgat	accgatcta	840
tataggcatc	gggagccaat	cgctctttct	ctatcaaaaag	ggaagggtgcc	cttcgatggg	900
actcggactg	agtttccgct	cggtagcgac	ccttctatgc	tcataacctgc	cagtagcaat	960
tcgagcggtt	tctcgtgggt	gtctttttct	tttccttggc	ttttttctct	ttactctttc	1020

gattgccggg gctgttggca gggcttcgtc cttgggtgaa atgctgcgta cccattcgcc 1080
atcagctctt ccgtccgaag ttcctgtctg ctgaggc 1117

(2) INFORMATION FOR SEQ ID NO:1140

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 643 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...643

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1140

aggtttcctt gtaattggct tgccacatca agagcagaag acatcttggt ccggaagcat	60
tctccttggg tgtacgcatg aagcgttcgg tgtaaaccac tcgtagaac gccagtctgc	120
cacaggagca acggctatcc ccgctttaat gtaccatttc cccgacacaa actcattagt	180
gtggtatagc cgccatgctc ccccccata tgccgatacg agctgcatcc acatagggca	240
gctgtctata gcagtggccg ctgctatctg atcatcgctt tcgaatacac cgagtgcag	300
taggtacact tgcgccattc ttcgccgca gcaccgggtgc caccatcc acacatgcca	360
cgacgtaacc tttcgtatgca aggtagtgtt ccaatcgaat gaatagcgat ccaatacctg	420
ctgggagttg ggaccgctat atgtaccatc aggacaggat agtggcgaga gggatcgaaa	480
tcaataggct cagatccag gcattcagtt caagaccga ttgagttttg atagtggtaa	540
ctccttcggg ttgtaacgat aggtttcag ccgttcacgg agagcaactt atcctccagt	600
gtacgcagct ctttggcacc tttgcttctg aataccgaac cac	643

(2) INFORMATION FOR SEQ ID NO:1141

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 637 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...637

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1141

ggttgccgag	cagaatttgg	gacagtttgc	actctatctg	cgaggcgaat	tccccgattc	60
cacccgctgc	agttcaaccg	tgtgaccggc	cagccgctgt	tatgagttag	atggtagaag	120
tattcacgca	aatgatggag	gagaaatatt	atgtcagaaa	cgactaagtg	ccccatgtac	180
gaggcaaaag	actatagagc	gatcagtatg	tgcgttggtg	tccgggttgc	ggcgaccacg	240
ctgtgtagta	accctccaga	aggcaatggc	cgaaataggg	atccctcccc	atcaacggcg	300
gtaatgtccg	gtatcggatg	ttcttccccg	ttgccatact	atagaacacc	tatggcttcc	360
acaccattca	cggctcgtgg	gcagccatcg	cgccggcgtg	aagacagcca	atccggagct	420
ttccgtatgg	ctcgcacccg	ggatgggtgac	agcttggcta	tcggcggcaa	ccacttcatt	480
catgccgtgc	caggaatata	gatatcaatg	cagttctctt	caataaccgt	atctatggtt	540
gaccaaaggc	caatactctc	ctacctcagc	tcgcggttgc	gtatccaaag	ttctccctac	600
ggtacggtag	aagatccgtt	tatccccgca	gaactgg			637

(2) INFORMATION FOR SEQ ID NO:1142

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1169 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1169

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1142

tgccgtcaag	caatggggca	taaaagaaat	aacaggagat	atcatcgtca	tgcacagct	60
tttgacattg	agggagtcaa	tgacagttgg	ctcgatgaga	caaaggcaac	tatttcggtg	120
ccggcgtcta	tggatttaac	atcaatgtaa	tagaatagat	gtcatccttg	ctacaggcaa	180
agcaggctcc	gaagctatat	cctgagaata	gagcctcctc	atccggagggt	tcgggtgggaa	240
aacagatcga	ggtaatccac	cgaggaaaagg	atactgccgg	atgctatggc	gaagggttga	300
tcttaagcga	acccttacgg	gagtccttcc	gacaaaatc	gttcctaccg	cctcaagacg	360
gatttgcccg	atcctgctct	atacggagct	gctggggccaa	aggcttattg	tctgctgccg	420
gcactctgtg	ccaagggaag	tccgtgcctc	atatcaagcc	gtaccgatca	ctcaagaatt	480
attaatctac	aatcccttcc	attggattca	ttgggtcggg	tgatgaattt	ccgtagtcta	540
atcattttgc	agaggctttt	gtcaaacagt	tggctcccct	tgcatcgaga	atcatcgggg	600
taatacaaca	gagcgtggtc	tgtccgtcat	ccgaaacatt	ggacttccca	aacaggattg	660
cagcataccg	acatttctct	ttcggaggat	ccggtctttc	ccgtaaaaaat	cgctttagcc	720
cgaatgccct	cagccaatac	tgatcgatat	gatcagtcgc	ggcgatcttg	ttaccacttc	780
gttctgaata	gcctgcctct	cgcaggaaga	gagggtacgg	tgaagaactt	cataaagacg	840
aagcaataga	ggcataacct	aagagtggta	gtatgaaaagg	tgtttagggg	atgccggcta	900
tgtgcgattc	caaggagaat	ggtagacgct	ttattgatgg	gtaatgattt	ttcttcttcc	960
gcaccgggtt	gtcgtgcttt	tcggattttc	ttcttctttt	cttctcttcc	gctatctcta	1020
ctaagcaagc	ctgctaaagg	aaaagtaaac	agcagcttat	ttcgtctcat	tcctcttact	1080
gatctcgtgc	caattttatg	tagggatgat	tgccgacaac	aagcataata	tagctctcta	1140
taggtattca	ttcgcgttta	agtcgcacc				1169

(2) INFORMATION FOR SEQ ID NO:1143

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1042 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1042

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1143

```
atcgtcaatg gccgggtgaa atggccgatg ccgactatgg ctacgtaggc cgggtccggg      60
acgaatcgat ctgtataacc agaagatatg tgttcgtctg gtattcctca ggagcaggcc      120
gtacaacagc ttatcgaact catcaaaaaa acggagactg gaaagagcgt tagtttttcg      180
gaaggactat ttttctagtt gatcactttc ctctcagaga cccaagcaat gaaaatcaaa      240
attataatcg ctgcgcatcat cccttgccga catatgcgac ttcggcatct gccgtatgga      300
tctgcggtgca tccatcgaag agcctatcac gttgttgcca ctcaacgtcg tctcattcca      360
acaggcctct tcatcgaact cccggtaggc tagaagcaca gatccgcccc cgaagcggac      420
tggctctccg acacgggtatt agctgggtcaa tagcccaggg actatcgatg ccgattatcg      480
cggtgagata ggattattat gatcaatctc tcgaatactc cttttaccat agcagatggg      540
aacggatttg ccagcttggt atcgccagac atgaacaggc cgaatggggc ttacagacga      600
attggccgat acggaacgag gtgcaggcgg atttggtata cgggcaaaga ataattttca      660
atctcccttc aactaccaca gatgcgatcc attctatcat tctcctgctg tttcttttag      720
ttatttctcc tgtagcggaa gtatatccat tacagacagt acagcatcta agttcgaccg      780
atattctatg aagggtgtccg gcagcgagaa caggagaatt atgctgcagc tttgacatct      840
ttcgctattg ccatcggttg aatcccacac atgctggctc ggatcggagt tgggaaaact      900
ggatatttgc cattgggcgt caggaggaag gaccccggta tttggaacaa agcctatcgg      960
ctctatccga ccaccaagga ctatggcaat atattaaggt gctgggtatg aacgccaggg     1020
acgagctgag atgctgcagg ct                                     1042
```

(2) INFORMATION FOR SEQ ID NO:1144

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 304 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...304

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1144

tcgttcgttc	aagggtcttc	ccaaaaataa	acagttgatc	aagtatctgg	cgaacccggc	60
atcaagagct	ccatgctgaa	gaccgaagaa	gcatacatgc	tgaaaacatg	aggaatatgc	120
atttggtcac	agacgaattg	tatttcacat	agatgaaaag	cgtaatagcg	tanagcttac	180
cgagaaaggt	atcgacttct	gacgtcccgt	acagatgacc	cgaaattctt	cgtcttgcc	240
gatatgcagc	tgagttatcc	gctttggaca	atatggaatc	cgatgcataa	aaacttgcca	300
agcc						304

(2) INFORMATION FOR SEQ ID NO:1145

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1024 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1024

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1145

gacaaggaca	cgaagcgctt	ctggttgttg	ccaagagggc	cgaagccaat	cgggacttgt	60
gcaagcaatt	ctattataag	acgacggcat	cgttcctacg	tgcaactggt	tggggacgtt	120
tcgactaccc	gatcgggaac	cattaccgca	atataggacg	cgacctgaaa	gaccgcctgc	180
aaatggcggt	attccccccg	atggagatat	tggcaaaccg	gccgtaacgc	attatcaggt	240
cttgagaaac	tggcatacgt	cagctggata	gaatgccgtc	tggagacagg	gcgtcccatc	300
agatcagggc	acacatgaag	cacataggcc	atacgttgtt	tgcgacgagc	gttatggcgg	360
cgatcaaatc	ctgagaggaa	acaatacggc	cattaccgcc	gattcgtgca	gaactgtttg	420
gctatctgtc	cacgacaggc	ttgcatgcca	agacattagg	ctttcgccat	cctgtcacgg	480
gagtggagat	cagttcgact	ccgatatacc	tgccgatctt	accactttgc	ttgagcgttg	540
cgtacgttta	tcgcctgcat	atctgcagga	caggactata	tctgaaccat	tcggctgac	600
ctcatacaaa	tagtacaata	ctttccccta	catattaata	aacagaacga	tgaaaaaacc	660
aattgtggct	gtcattgcag	gcggttttcg	ggcgaacatt	cggtttcgct	caaaagtgt	720
gccggcattc	tgtccggctg	ggaagcgagc	ctttctccac	ctttcttgtt	ctgatcgaac	780
gtgacgtgg	tcggtaagag	tatcggagca	gagagaggtt	ccactggata	agacgatttc	840
agctttgatc	tcgatggcga	acgaatacgg	tttgactatg	ctatatcacc	atacatggaa	900
ctccgggaga	gaacggctctg	cttcaggggt	actcgacatg	atcggcatcc	catacaatac	960
gggtgacncg	ctcgtcgaat	cctgactttc	aacaaatatg	tgtgcaatcg	ttttctctcc	1020
ggct						1024

(2) INFORMATION FOR SEQ ID NO:1146

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 670 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...670

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1146

agctccgatac	cgatttagtgt	cagaagccat	acaccgcctg	ctttccatca	agccataacg	60
gaagtgaatt	atgcacacga	tcccaaggcc	gaatttttag	tccagcgata	gatcccgaga	120
aaataacggt	gggcttcatt	ctcgatctat	agatcgttat	gggagcgaac	acttcaaggt	180
agacaataag	gtccgatcgc	tccgaatgg	caagcgatag	aggattcccg	tcagagcctg	240
cacatccccc	tgcggacacg	ctactaaaga	atattgtagga	gcttattctc	tgagactcag	300
agtattctga	ttactcagag	tactcggatt	gctcggactc	gaaagagctg	agatccggcc	360
gtagtcggct	tgtatttggt	gacgaagagc	ttcaaactat	cgaacttcac	atcctctctg	420
ataaaggata	caaactccac	tgtatctgag	atccgtagat	agttttatca	aattcgaaga	480
gattgacttc	atcgttcgct	ggtcaccggt	gttcaacgtc	ggcctgcgac	ctatatacac	540
atgccattgt	atcgttcgcc	acttacaatg	gctctgacgg	catagaccca	tcgcagggga	600
tcaacttggt	actgtcgctt	acagtcagat	tggccgtggg	aatcccaatt	cgggccccat	660
cttaaaccat						670

(2) INFORMATION FOR SEQ ID NO:1147

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1136 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1136

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1147

ncngttgcat	gcatttcgac	tcttttaggat	cccnnggcccc	tctgcaaaaa	ctggcgcggc	60
ggtagagcag	caggcggcaa	tatcatcccc	tcttcacggg	tgcagccaaa	gcagtaggca	120
aggtgatccc	cgaactgaac	ggcaaacgac	gggtatgtca	ttccgtgtgc	cgacactgga	180
cgtatcggtg	gtagactgac	atgccagttg	gcgaaaccgg	ctaaatacga	agatatttgt	240
gctgcatgaa	gaaagcttcg	gaaggcgaac	tcaaaggcat	tttgggctac	acggcgaaga	300
agtgggttcc	tccgacttca	tcggcgaaac	ccgtacttcc	gtatcgatgc	caaggccggt	360
atcgcaacta	cggatacttt	tgtgaagatc	gttcattggta	cgacaacgaa	atcggatact	420
ccaacaaagt	actcgatctc	acgcctacat	ggctaaggta	aacgcataag	acttctacga	480
gatccgatcg	atctttcatt	actccctcac	ggggctgtac	cgaagggaact	atccgggtaa	540
gccccgtgtt	cttttccgga	tattatcgac	taaccaattc	ccctccaaat	catcagatag	600
ccgcacgtca	gctctcttcg	gactgtctat	ttcgagctcc	tgactgcgat	attcgcccgg	660
atcctataccg	gtgtgctgct	tgaaatcttg	ccgaaaaacg	actgggtgga	gaagttcagc	720

tcatagccga	tctccggacc	gtcttatccg	tatagcgcag	caaggacttg	gcctgctgga	780
tgataagctg	ttgatgactt	tgagggcaga	ctgtcccatg	acggctctta	tcgcagtgcc	840
aaatgtttgg	agctgaggca	cagcctgtct	gcatagaact	tgccgtatgc	tgctctttgt	900
gatgctcgga	gacgaggagc	agaaagtcgc	gcaaatagtc	tccgacctgg	tgtgcttgca	960
gtccttctcg	acctcgtcgg	aatcatatcg	tcnagaaaga	gaaagagaga	gctgatcnga	1020
tagatgacat	ttcttcctga	tgacgcccc	cgttttgcag	ggcgttgcgg	atgagatcaa	1080
cgttgccgctc	agaaaatctt	tctccatgcg	ttccggacgg	aacggttggt	gctgtg	1136

(2) INFORMATION FOR SEQ ID NO:1148

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1311 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1311

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1148

attacacggg	caagggtatc	cagtcggcct	attggaagat	ttcgcgcgac	tgaagtttgg	60
caagctcccc	tttccattca	tttggagtcc	aacggaggct	ctccacaagc	tttactttcg	120
gacacgatgc	tctaaatcgg	tgccaccaca	cctacaacaa	cccctccttt	acacgtggat	180
ttacgatcac	gcccattaca	agcatctggg	tgcgcacgac	ttccacacct	atcagatcac	240
cggcattggt	acatgcacct	ttctggacgg	tctgcttacc	ttcaacggct	tcctgatctt	300
tgggggtttcc	cccaagagaa	cccaatcggg	ggccctgtgc	tcaagaaggg	gataagttcg	360
tattcctgtc	cgaaccgcag	ttctggatca	actcaatcgc	atcaaaggca	tcgacaagga	420
tttcaatctc	agcataggga	cgagatggaa	atcagcagga	acttcgctcg	catggacaaa	480
ttctcctgca	ccctactctt	gcggtcaaat	ggactttcaa	ctgaacgaaa	ctcttcagta	540
aaaatgaaaa	cttggcaatc	cattctcgga	ttcaatcccc	agaagcaccc	gtccgaacgg	600
agtttattgc	aggggtgacc	actttcctga	ccatgagtac	atcttggcgg	tcaaccctga	660
tattcttgct	gcagcaggga	tggacaagga	gccgtattca	cggccacggc	actttcttcg	720
gccgtggcta	cgtgtgatt	gcatttttgg	ccaagctgcc	cttcgctcaa	gctccgagca	780
tgggatcaac	gctttcttcg	ccttcactct	ggttcaaggc	atgggctact	cttgacagact	840
gcactggctg	ccgtctttgt	ggaggggatc	gtcttcatcc	tgtgacggca	ttcaatatcc	900
gtgagaagat	cgtcgattgc	attccttaca	actgcgctat	gctatctcgg	ccggtatcgg	960
catgtttatc	gctttcatcg	actgaagaac	gccgggatta	tcgtatccca	tcgggctaca	1020
ttggctcgctt	cgggcctttc	actccgatat	tcttgctggc	catectcggt	atcatectag	1080
cgcggcactg	gtcgtgcgca	aggtgcgagg	ggctttgttc	tacagtacgc	catttgtagc	1140
atcgtcggca	ttccgctggg	agtgcagcc	attcccaagg	atttgcccc	atctcctctc	1200
cgcagagcct	aagtcccact	ttcctcaaat	ggatttcgcc	cctctccttt	cgttcgatat	1260
ggctatgacg	atatcgctct	cgtcttcatg	gatattttca	atacgatcgg	c	1311

(2) INFORMATION FOR SEQ ID NO:1149

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1141 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1141

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1149

```
cagttgcata cgaatttcat cgcccttgag tcccataccg atgaaccttt ttcgcggggt 60
gatataagat tttgcattgg cttctgccac cttcgtggct gaatgggtgct gaaaccgata 120
agttgtgtcc ttcgcgggaa acgggaacat agtgctcgtg cagatactcg aaccaacgga 180
tggtgtaagc agtaattcac ggatattctt ttccagttcg gcaatatacct ttctgagctg 240
aagcacatgg cctcgtgctt gggcaaattg aagcggagga tccgtgccat gcgttttcca 300
acaacttctt cagatcgctg taggtaatgg ggcgaataaa acgtgggcat aaggttccag 360
cctcgctctt acatgcatga gagcatcctg ttgctctcgg cctcttcgaa ctacgatct 420
ttatagatac gctcttctat gaaatccgct cgagcgcgatg tgccaaatac tgttcccgt 480
tctcttccaa cggatcgta gttcttgctt cagcagctcc cgtgttcgct ccgcactata 540
cgcagcaaat cagtcactcc caagaatacc ggcttgctgt ccatgatgct caagcattag 600
gcgactgact tacttcacag tctgtaaagg catagaggca tcgatggttt tgtccgaaga 660
tacacccgca gccagatgaa tacgtaatcg gcttcggcag ccgtcatatc atctattcgt 720
ttgatcttga tcttgccctt tcattggctt tcagaatgga ttcgatcagg gaagacgtcg 780
tcttccacag ggcagttcgg taatgctgag agtacgattg tccagtttgc gaaattagcc 840
ctgctcttga tctgtcctcc gcgccggccg tcattgtacc ggtggcatcc atcataccac 900
cggtagggaa atcgggataa agatcgaaag atctcctctc agatgtgcga tacatgccat 960
gagcagttca ccgagattgt cggcaagacc ttggaattca aacctacagc aattccttcc 1020
gtgccttgct caagagaagt ggaaacttta cgggcaacgc caccggctcg tcctcgcttc 1080
atcgtaagaa cgtttccagt gcgtaatctt atcattgaaa agagtctctg agccaaagct 1140
g 1141
```

(2) INFORMATION FOR SEQ ID NO:1150

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 469 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...469

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1150

(2) INFORMATION FOR SEQ ID NO:725

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 362 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:725

```

catatatata cagagtcctcg ttcacgcgcg tgcgtattat cagcgatatg ccggcggaagg      60
tcgggataac tttgcggagt atatggactt ctggcgcagg cttctccggc taccttttct      120
attctcgaaa gagtattcga tgcaatgaga aataagacaa tcccgatatg gagatggaaa      180
aaattcccag ttttcattag atcatattcg cctcaaacga ggcatatatg tctcccgcaa      240
ggacttatag ggggagagggt ggttacgact ttcgatattc gaatgaaaga gcccacgcgcg      300
aaccggtgct tggggcaccc gaacttgcac acgatcgagc atttggtctg aaacttatct      360
gc

```

(2) INFORMATION FOR SEQ ID NO:726

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 393 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...393

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:726

```

agcagaacgg cggcaggaga gccgagccgc cttttcgccg gctctctcgt gcactgggag      60
ccggggggcg catggaagct gaatgtctcc gtccgccagg tcattctttt ggcggtttgg      120
agggatttcg ctccggctat acgcgcagga ctaccgcacc tacctgcttc cttcgggctt      180
catgagcgag aggcgaattc gggggcaaac ttttcggctg attatggcga cgtgctgcac      240

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ctgtttat	ttt	tcatctg	aaa	gccgat	att	cgcgcag	tcg	ctccaac	gaa	ttgccc	actt	300
cgactcac	gg	cggaac	ataa	tatcat	ccc	gtacgag	cgc	tatggc	accg	atctta	acgc	360
tttttttc	gc	cgatat	gcg	tctgag	caag	ttt						393

(2) INFORMATION FOR SEQ ID NO:727

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 468 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...468

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:727

ggccgtt	tatc	agtatc	gggg	ggaacct	cct	gcggatt	ccg	ctggctc	tgt	gcttat	cgg	60
atgggct	tcg	gaccgga	atc	cgtatgg	tgg	gcgatc	agct	ctcatcc	atg	ctcaaag	ggt	120
tggccat	cgt	gtgtgg	actg	ccctatc	caa	cagacga	atc	aaactac	aca	gccaact	tct	180
accctct	tcg	caatga	atac	atcgcata	cgc	cattcga	aact	cacacac	cgt	ccggac	gaac	240
tgacttg	gag	acggcata	cgc	acctgct	tag	tgccga	aactt	gccgaa	atag	gattgag	agt	300
ttcgag	caaa	acgagac	tgt	ccttcgt	gct	tatatcc	cctg	gctcac	cgat	atagcat	ccg	360
acattc	ctgc	gctattg	gag	cagtttt	cca	ctccggg	gct	tctgtg	gcaa	atactcat	cc	420
gagatcc	aac	cggatat	caa	cggaac	gaac	agtggg	aaaa	gaactt	ct			468

(2) INFORMATION FOR SEQ ID NO:728

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 263 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...263

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:728

ggatctc	tttg	ataaatt	ggc	aattcca	aatt	tatcaag	aga	tccctct	ttt	tttgcgt	gag	60
---------	------	---------	-----	---------	------	---------	-----	---------	-----	---------	-----	----

agataacttca tcacagatgg atttgcttat ttgctcactc tataattcaa cccaacctgt	120
ttttcattgg gtttgtcgct caaaaaggaa tagatccctt cgtaaaatag ttggcgtgta	180
ctgaatgaaa aacataagag accattgcac aataaccctt ccatctcctc atatngatca	240
aaacaacaca tgcattgatt cgg	263

(2) INFORMATION FOR SEQ ID NO:729

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 491 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...491
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:729

gatggatttt tcttcctata caatcctttg ccttaatcgg ctcgatgcag gataccggct	60
ttcgggtatac ccaagtgata gcataaggga cagaatgtga acaaaatcaa gaatggatat	120
gaagcagaaa aacgcctata accgactact aaccactacg acgatgtcct caccggacgg	180
aaatggtggt cttggcctat atgcactgtc tctggaaaac ggacgacaat atcatcgag	240
gctcgtgctg gacatgattc cgggcaactt cgagggcaga atactcgacg tcccgtagga	300
acagccattt tcacctatga caaatacagg cggatgcccc aagcgagatt gtcgggctgg	360
actattcgca ggaaatgctc gacatagcag cgtgcgcttc agtgcagagc aaataaccaa	420
cgtatcgctc cggcaaggcg agtcggcagc ctgcctttcc cgatgcgggt ttcnacctcg	480
gctcttcgat a	491

(2) INFORMATION FOR SEQ ID NO:730

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 599 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...599
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:730 •

tagaggttcc	ccggccaact	catcggttg	tgcgtggacg	acgctaacga	tccgaccaga	60
ccgaagctcg	tatggagcgt	tggatcgctg	ccatgggctg	taattaatgt	tctctaagag	120
ccggagatcg	agatcagagg	gaaactgtta	gcgcgaaata	aaagcgtatt	tgtcatcaaa	180
gcttactcct	cttctcgctt	tcggctctct	cgttaccact	cttttcctct	tccccttctt	240
tccgtattta	ttcgactcct	gacgatggac	acgcaaacac	tcaatagcga	tctggcgtat	300
tcatgcacca	tatatacgag	tttgaaaaag	gtgtgcgaag	catgtactcg	ccacactggc	360
taacgacgac	atcccatatg	cggagaagacg	gcgcgaagcc	ggcagatccc	ctatttcgcc	420
cagcctactc	cgaatacgga	ggtaccaatc	tctttttcgg	ctgcaaggag	tgtatgggag	480
gctatccgtc	tttcgtgagt	ggacgcttct	ctgaacaagc	ctgacttccg	gaggaagaat	540
catcatcggg	gctatgctcg	gatacgatat	ttgcagacag	tgcgaaacgta	ttggtcgcc	599

(2) INFORMATION FOR SEQ ID NO:731

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 664 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...664

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:731

tccccagct	tccaatgtac	gaggttccag	cccttcgggc	agaacgatcg	ttgtttgttc	60
tcttgagcac	gtctgataac	gtcttgaatg	agatccatga	taataacctta	tagttattat	120
agttattgta	atgatgatct	tgaaaagaag	gcgagcagaa	ataacgcctt	gtttgcagtc	180
gcaaagatag	ttaaaacacg	ggcaataaga	gagatacatt	caaaataactt	tggaaatgga	240
agtatgcttt	ggcagggctg	tacttccatt	ctccccattg	cattaatatc	ctttttgctg	300
ttctatctag	tacgtgacga	aagaggatga	cgcaaccctt	ctacgacttc	agatagactt	360
cggctgcacc	gattctcagc	tccatcctga	taggacagggt	attctatttg	catcattcgt	420
gagccatatg	gtaatagcct	tttgggattc	ttgaatgttt	cggattcgtt	tatgagcatg	480
gatacccgat	agtatgatag	ttgataccct	ttttcgtttt	ttgtacttca	gaactttcga	540
ttgaaagaaa	cagtcgatcc	cctttttccc	tgcaaataatt	cttaccggat	gcgctctttt	600
gtactctttg	accagtcttg	tcgagcgaag	atagagtttg	ctcctatcat	atccagagat	660
attt						664

(2) INFORMATION FOR SEQ ID NO:732

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1446 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1446

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:732

```
ccgtcactga tgatgctgat ctgctctatc tgtccagcag gttgtttgca gattgtcttc      60
ccgtacttcc ttacgagcac atgggttgca ctgataccat gaaagctcct ggctcggtaa      120
ctaccaaatc gaatatctct cccctctttg caattgtctt ttttgcctgt cacgcaggat      180
ttcgctctct ttcttttcgg gaaattgtct gcacttgaga ccactgtctg ccgcatagcc      240
tctcgagagt ctgtttggcc gtttccgaag agagaaagcc cagccgtaga agatgtcctt      300
ggcgcttttc cgagcctcgg aggtcggtaa tgatgcgatg tgatggcata gacagtggcg      360
gcaacttcgt caatagcctc tatgtccacc ttgcgagcag tttgcggtag tactgtcca      420
tgccatggat tgtctccgag aagctgagaa gttttcggtg tcgcgatgga gcgcgagtgt      480
gatcttgctg tgagtccttc tttcttgctc cggctcatgc tccttgaacc atctgcacaa      540
acgtaatacc gaggaactg aaagagcttt ttatgctcga taccacaagt ccctattcag      600
cttcagccct ttgcgggtatt tcaaattgtt gctcaggctt ggagagcatt tagcggatct      660
actttctccg gcaagaagag tagcagtcgt cggcatagcg gataaattcg gttgttatat      720
gcccggcgat gtagcatccg tgtcttccaa gtagaggttg gaaagcagag gggccagagg      780
gcttctctgt ggatgccgga ggatgcacga gcatattgct gcttcgggtc cacactccgg      840
acttcatcca gaggtcaac atacgggtaa ggaagggatc ttggttgctt tttggacttt      900
ctgcaataga gaggggacag ggatagaatc gagaagttgt caatatcgca gcgcaccact      960
gtatggttct catccagaga tccagcagat gctgcactct acgaacggca gccacagctc     1020
ccttcccctg cgataggcat agctctgtgc aatggataaa gactcgggtg tcggataggt     1080
atgccggcaa ggcttctctg caagtggaga tccactgccg aagggtattgt agctgtcggg     1140
aagagccatc ccccttgggt atgttcacag agtgatgggc tgcggtatat agctgcaaat     1200
acgtagggct tccaacaaat cttgtgctcc gcttctgcca tgggaaggtc acgatccgca     1260
gccagcgaag agagcacttg cgatacaagg tatcgttgcc cgagtgtctt ctatctgacc     1320
attcccacga ttgtatgatt gcctatatgc acccaatgcg ccattgagag cadaggctgc     1380
ttacggatcg tagggaacac gatagaagag ctgacccaat agccgacatg tcgtactgct     1440
gtttcc
```

(2) INFORMATION FOR SEQ ID NO:733

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 620 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...620

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:733

```
cggccgaagc ttttcgatcg gtatcagtcg gatgtccttg ctcacgtcca tcggatcgcg      .60
```

tacgggctcc	gtcccgagca	gatagagtat	ttcagctagg	tagcaccttc	gctttcgatg	120
aagctactac	tccatagcgt	aaagctgctt	tcgtaggaag	ttcgccattg	tgacggcgag	180
cgtagtcggc	cagcattcct	ctgccatctt	cttccctttt	tcccatgcag	ctgctgatgg	240
tgtggctcgg	cattgataga	gaagagggtt	cttccggtag	gaagcgtctc	cggatggcga	300
tatagtcgcc	acccggcgaa	ggtgccgtat	aaccgccgga	gaggcgttca	tcatagaggt	360
cagctccagc	tgtgggctgt	ttttgagtgc	ctatagtaga	aaggatatctg	ggcaatagca	420
tgcttgagtt	cgctgatgct	cctgccatgg	ctttgtcttt	ggaggtaagc	tctcgtactg	480
gctgattcgt	atggccgggt	gcttggcttt	cgacttatca	ggcatcatag	cttttgcctt	540
tccgaatgtg	ccgcttgcat	agaatccttg	ccgtgagaag	gcgttgcggc	tctgctccat	600
cactcttcat	cttggcggcc					620

(2) INFORMATION FOR SEQ ID NO:734

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 354 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...354

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:734

ggcgaagctc	ccgacgttcg	ccgcaagttc	gtcgcggcag	gcgtggcact	atccttgctg	60
tgagcgggtt	tcacgtgggt	atcgatttgg	ctgccctcgt	tttctcatgc	gtattctgcc	120
gataccgcag	cgatggcgtc	gggcagatgg	ctgcttccgc	ttgcaggggg	atggatatac	180
gcattcgttt	gcggttgggt	gtcctttag	tccgagccat	gctgatggct	accttatata	240
tagtcgtaaa	tgtcgggca	gaccgtacgg	atggattgaa	tgtttgggct	gcggagcgtc	300
cattacactc	gtggatcgat	cccctctctt	ttttatgacg	tgggatttgg	tggc	354

(2) INFORMATION FOR SEQ ID NO:735

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 524 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...524

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:735

ccgacaaaac	tcacggaaat	gttcttctgc	gtaaaataag	aggttacgga	cggttactccc	60
gaacttcgtc	ataaatccgg	ttgatcagct	ccattcgtct	ttgtcgttca	tcgacagggc	120
attgtttttg	agaagcgttt	tcagctcttg	agcgactcac	cgctcatttc	aagcagtttg	180
gcatagcccg	atgccaagcc	gaaagtcttt	ccggactgta	gttcggatct	ttgagcatgg	240
agcgaacccc	gtgacgtaaa	tatccgtgat	atcgccctacc	atcaggatga	tctctttacc	300
ttgtaggcat	ccccgatcag	gttattgacc	cgtcttgagc	gcgcgtaagt	atTTTTTccc	360
ctgatgatag	actttctcca	cttccttgaa	gtgttcaggg	tgTTTTTTac	cgtcttggaa	420
gccgttgcca	tctccttgac	ctgttggcga	tgttgccggc	aaaatttggt	cggatcggtc	480
acgaccct	ggcattgtac	gctgccacag	cagaccggca	gtac		524

(2) INFORMATION FOR SEQ ID NO:736

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 395 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...395

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:736

gcttgtaatc	agaatgccaa	gggatcgggt	cttgccataa	gtacgcctca	attagaataa	60
atggagctat	agagccctac	acgacttctg	cttctacgag	cttgttacga	ccacaacatc	120
acaatcggac	tgtaaagctc	ccaaaaggta	aaagtgggtg	aaacggtcgt	agggtggagaa	180
actaccccc	aggcattttg	gaaatcacgc	tgccgttggg	ctttaagtat	gtgacggggt	240
cttatctccg	gacaatacgc	atncgggagg	agtcaatgcc	tcacctgccg	gaacgaagaa	300
gtcactttga	ctcgcgaaac	gtgaagacaa	gattaagata	aattcaaggc	cgggtctgac	360
gtcaggtcaa	tcgtttgctt	ataccactcg	aatga			395

(2) INFORMATION FOR SEQ ID NO:737

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 562 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...562

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:737

gggcaataac	taccgttctt	gcatcgtgac	agcagaggct	gcattgaagc	ttatccatac	60
accaagcatc	gcgaagagct	ggtcttcctg	atgcttcagc	tatgtacgaa	gaggcctctt	120
tcagcgtcag	tgaaaagttg	caaacgctta	ccgtgatgta	gcggaccagt	actttgccta	180
catcaacgaa	tttcccacgg	gaaatacctc	aagcaagcca	aaaagatcta	cgacagcgtc	240
agcaacatat	ctcacaagac	gcttgacgaa	tgctcatata	caccggggga	gtctccatcg	300
cagcaacata	aaggagacgg	cagagggtgg	atcaacaacg	gaacgatcgg	aagaaaaagg	360
ccctgacaca	agttccgact	aataacaaaa	acatcaaaaa	gatatatgga	gcttaagaaa	420
atgaatgtcc	ccatggacac	cttacacgtg	acatgggtcg	tctgagcgaa	gacacggaga	480
acgtgtacga	gacagtgatg	atcatagcca	agcgtgccaa	tcaaatcggg	cagcaaaaata	540
aacaggatct	tggaaagaaa	ct				562

(2) INFORMATION FOR SEQ ID NO:738

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 926 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...926

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:738

tggcgcgaga	atgaaaaaaaa	tctcgcgcc	caacgaaaaa	aaagtcgcgg	tattttgcag	60
aaaagcgggt	ccgctttttc	tccttttcac	gctcgtgatt	tcacccctg	ctccggctgc	120
acacccctct	ctcctgcaga	atgaatactt	tcaaataccc	ccccccgcaa	aaaaacaatc	180
aggacacaga	gtgggggtat	atgccactct	atgtcccgat	tgcgttagga	gggaaatgtt	240
gcttaggatt	cgccaccgtt	atcgtctgtg	tgtggaagta	ttttgaacga	gaagaactgt	300
gatcgtctca	gccgaagcag	atattatcga	tttgaacatc	agtcacacct	gcgatcggtc	360
gggattgccg	tcaggatata	gtcgtaaaaa	ggttttcggc	ctcgttgcca	aagataagcc	420
cctgaccacc	gggggggataa	agttgttcgt	cttgattcgg	aaagtagtag	gaagcaaagc	480
cggattgaaa	cggccgggat	attcatgacg	atgttcagtg	ctttatcctg	cgtcttatga	540
cctgacaaga	gactgcgttc	gaagtggctg	tgtattctgt	gaatgcattc	ctgcaccctt	600
ttgtgtgcgg	actgcaaatg	gattggtaac	ggnagggttc	ctcactacca	cacgcaccag	660
acgtttgagg	tcaggattat	cttgtgtccc	acaatgatgt	ctgacgtaca	tgagcctgaa	720
ccgggtgttg	cagccatgac	aacgaaatcg	taccgttggt	gttagtagca	ccggttactg	780
catcccgcta	tatgtgacgg	tgatcagatt	gttctgctgt	gttacgttgc	caaattcgga	840
taataagccg	ctttgattgt	gcccgttgtc	tgcccatcgg	taaggccaag	taagtatgat	900
ccacttcgat	cttacctttc	cgggga				926

(2) INFORMATION FOR SEQ ID NO:739

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2787 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2787

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:739

tgaacttaca	gttcttaccg	ggcactgtcc	tgcaacatgg	caacattaca	cctgccaaag	60
aaaaatcctt	caaagccgtt	tgccactgcc	cgagggtagc	tgtacggcca	agcgaatatc	120
cgtatgttcc	tcggctgaga	gaaagcttaa	tctccctgtc	cgatcgtaca	ggcatagccg	180
ctgggaaact	tttgtggata	gaattcggtc	tatataggaa	ttgtttccga	ccaaaggccg	240
gcgcaagcca	ccgctgcgag	agtagaaatc	gtacagccat	gtttcggcag	gaataggaaa	300
ctacagatat	cgccacggtc	atatatggct	gaaagagcct	ccgcatcatc	gtgcgcataa	360
tgcctttgcc	acgatgatcg	gggtgtgtgc	atctccggaa	atataaccgg	ctgagaaaga	420
agtgccaaaa	attcgcagtt	gtaaggaagc	at ttgcagat	gtgctacagc	ctctcctgtc	480
tcgctatact	tagcaaggta	taatcctcac	ggaaaacttt	gtggaaataa	agctcaatga	540
aggctcaggg	tctttgaagc	agatgcgcca	tagccgcaca	gatgcttccg	cttggattcg	600
gtcatgatcg	cgctgcagta	tggtctgttg	tttgggcaaa	gaatggcagg	gcgataagat	660
agtttggcct	ggcgcgagtc	cggcagccca	aatcctcctc	gcgattgatg	tagcggaaatg	720
tgtccggtat	cgaacggcaa	attctctatt	aatcatcgca	aacgcgcctt	ccaccatagc	780
atcgcccttt	cgatatgtac	cccaaaagtg	tcggtattga	taggggagcc	taacagaaaag	840
ccactacccg	gccaccgact	cgtagtactc	cccccgaaaag	cccagctcct	gacgatgccg	900
aaaagcacgc	tctaccatct	ctacctccag	cctcttccgt	cctgatcacc	tcggctatcc	960
agccatagat	gagccagcat	aagcattctt	cggcatcgct	atccttaaca	ggatcgtatg	1020
tatagtcaga	tagagagaga	caaattttatt	gatatgattg	cgcttggcct	gcaacttttg	1080
cctgacaaaag	tcgctaaact	ttcacgttcg	tatatgtagt	cgcaatagct	tcatcctcga	1140
taaagtaata	ctcagccgag	caatgttcct	ctatactcgg	tgaatatcgg	gagtcacacc	1200
cataaatatc	aagggataat	cttcggcact	acttctgctt	tcagtcgatg	ggcagcggcc	1260
actacttgct	caggtcagct	cccacaggaa	agagatagac	cggatgacta	cggcttttcg	1320
gttgaaacgg	atgatcagac	agccctccac	aatagcccaa	gacgtgccat	agcgaaactc	1380
cagcaataga	gattggaaaa	agccaggctc	caaattcttg	cactgaagaa	aagggtgatag	1440
ttgttatagc	tgatctgtca	gcaggttcta	cggtttgaat	ttaatatcca	ttcgcattgg	1500
ttttgtcacc	ccctgttcaa	tagaaggag	acgttaattt	atcggtgaaa	cacctttaac	1560
accgaaaagt	ttcatccttt	tccctatttc	aattcggcaa	atgtgtcacc	tgcggagaat	1620
ctcctgtctc	gaaccctcgt	ttgaaccaat	acatcctctg	agaggagtgc	catgtgcgaa	1680
agcatcaggt	accacatagc	cctgcgattg	tttccaacag	gaagatgggc	tataccacag	1740
ggcagatggg	ggtactccgt	agagataacg	ggctatcccc	tacggctcct	cgagctacgc	1800
tgtagagctc	agcaggtagc	ctctacagcg	tagcgagccg	agccgtagag	ttccgctccg	1860
gggccgtaga	ggtggccgag	ctgagccgta	gagcttggcg	cggtgagccc	tcagcgtagc	1920
tcgaagagcc	gtagagcgca	gctcggtagc	ctctacggcg	agcccagatc	gctgtagggc	1980
gtagtctcag	ccccctccgg	agtatatctg	aacggctata	aaacaatgct	tatttggttg	2040
gagtaaaaaga	gtcgcccgct	cctttttatg	gaagccgggc	gaccgattaa	agcgatcggg	2100
tggtagacat	accgatcgaa	aataatcatc	tcgttacttt	acagcgagtt	tctctagtag	2160
gacttgccgt	caacgacaac	catgactgca	tagtggccgc	cctgaccgtg	taaacaaccg	2220
tgttgcgacc	cgctgccaga	cgacgaccgt	tcattcgtag	atcatagctt	cgccttggca	2280
agttaccgtg	atcgtctttc	ctaaactgtc	agcgtgtaag	gcttctgagc	cgttacgtct	2340
gccaacgaag	tgtattcaac	gtagcagttt	cgatagctga	ttctccgttc	gggtaaacaa	2400

ctttacaccg	tacgtgtaaa	aaccggtagc	caagtccgga	tctcggtaag	agtctccgtt	2460
acgcctgatg	ctatctgtgt	attattacga	tagatcgtaa	ggtgtaagac	ggagcggtcc	2520
ctgaagtgat	tacaacatca	tcaaggttat	ccagaagaag	tccgtacagc	cgaagtgacg	2580
gaaggcaaca	tacttagacc	cgcaggcaac	tgtaccgtct	tttgatacca	ggtgccctga	2640
gcacgatacc	acgaatggct	tcagggtgccg	taacaactgt	cttggccgtc	agcactcttc	2700
caacaaagcg	ttggcgaagt	tggaagcgtc	gttacccgta	gaagtgcgta	cacggcatag	2760
tgctctgatg	cataattggc	atcttgt				2787

(2) INFORMATION FOR SEQ ID NO:740

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:740

tgaaacgggc	tgctacgatg	gctatcgcg	atctggcgcg	agagactgtc	ccgacgaagt	60
actgcgagcc	tatggcaata	ctcagttgca	cttcgggagg	actactttat	tcccaagccg	120
gtggatcctc	gtctgatcgt	tcgcgtacta	ctgccgtagc	acgtgcggca	gtcgagagcg	180
gagtggtctga	gcatccattg	cggattgggc	tgcttatgag	gccgaattgt	tgggacgggt	240
gggacgatga	gccaccttac	gcgtcgtctt	catgaatctg	ccaagctcaa	tcctatcgcg	300
tgatctatgc	agcctgcgag	aatccttcgg	tgctgaaagc	tgcttatcgg	cacgtgcaca	360
tggaatagcc	cgaccgatca	tggtggggga	tggaagcaaa	ttcgggattt	tgccgcagag	420
ttggatttat	ctttggaggg	ttcgaaatcg	ttaattaccc	gcttccgatg	aaagaaaagg	480
cttcgccgtc	ttcattatgc	ccgtgtcttt	gccgaacaga	actgg		525

(2) INFORMATION FOR SEQ ID NO:741

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:741

cgacagaaaa	acacacgtat	gcccagcagg	acaaaagcca	gtccgaccac	agaagagaag	60
ccaaaaaaat	tgtagtcatt	tattgctata	tttgcggata	caaaggtaag	atcttcttac	120
ccacagagaa	gcacaattaa	taactcaagt	aataacaatg	aacattacag	atctcaaacc	180
cacaaaagtg	tggaagtgtt	ccacgaaatc	actcaagtgc	cacgtccttc	caagaaaagaa	240
gagaaatcct	ggcttacctt	gtgaaatttg	cagaagatcg	caacctcaaa	tatctacaga	300
cgaggtaggc	aatctcgtaa	tagagaaacc	cggcaacacc	cggtagcaaa	cacctcgaaa	360
cggatcatcct	tcagagccat	atgggatatg	ggatgccgaa	gaagaatgcg	ccgataangg	420
ttcatgactt	tcgaggaacc	gccttattcc	cgg			453

(2) INFORMATION FOR SEQ ID NO:742

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 721 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...721

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:742

tttttcgaat	tctgcctcat	cgctgttttt	attacaccgc	aaaagccgtt	atggatggaa	60
gtcgtaat	agaatacggg	tagtcaagta	tcttggtggt	tgcacggatg	gtacggaagc	120
tatactgcat	ggcgaaaggc	aatctgctct	gaaaggcatc	cgctccacca	atcccgtaac	180
cgtaggcgat	cgcgtgagat	tgtccccgct	tctcaggacg	gacagccggc	ctacatcaaa	240
cgaatcatcc	ccgacgcaat	tatatcatca	ggcgagccag	caacctctcg	aaagggtcca	300
tatactggga	gccaatgttg	atgctgccgt	gctgggtctgt	acctcaacga	tccgggtgact	360
accaccgtct	ttatcgatcg	tttcctcgct	acgcagaagc	ctatcgcgta	ccgggttattc	420
ttgtattcaa	caaaatagac	tctatacgca	agaagatcgc	ttgcaattgg	accggctgtc	480
ggctgtctac	ccgccatagg	ttacccttgc	tgccacgtgt	cggcgattac	gggcgaaggc	540
tcccggatct	caaatcccta	ctcgatggca	agctgacact	ccttgccgcc	attcgggggt	600
tggcaaaaagc	tctttgatca	atgccctgat	tcctcatccg	atttgcgcac	aggggctata	660
tcccaagccc	atcataccgg	catgcaacga	ccacattttc	ccaaatgatc	gacttccccg	720
a						721

(2) INFORMATION FOR SEQ ID NO:743

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 502 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...502

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:743

gccggccggtt	gagaaaagga	ctgtcgcggc	tcttcgtttc	gccccgatcg	cctgcttctc	60
gttgctgcgg	gagctttctc	catacagctg	acacgagacg	actgacagct	acttcacgct	120
acaagctgtc	ttcatccgac	acttttcggt	catcgggaat	ccggagccac	gcgagggcaa	180
actgcgaatg	caggtaaact	gacaggaggc	tcctccccat	cttatatcct	gtacatccga	240
cacgagggga	atacagaccg	gtcgtcgcg	gcgatatgct	caagcttagg	aaatctatgc	300
ccgatcggtc	gaagaatggg	agcagaaagc	tccggcaatg	gggggtatat	ggcgggcaaa	360
ggactgtccg	gcagtctgca	tgccaagacc	gggatgtaga	aatcttgctg	acagccaaag	420
ggccgttctc	cctcaggcaa	aaggctttgg	atctgtcgga	tcgcttggct	gccacattgt	480
acgaactctc	ccttcgctac	tg				502

(2) INFORMATION FOR SEQ ID NO:744

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 349 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...349

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:744

ggatggagtg	gagcgtaagc	tgacggccga	ggatctgatg	atatgcgatc	gaacggcgat	60
cccatgtgtg	tggcgggcgt	tttcgggtgg	cttcactcgg	tgtaacggaa	aagacaacag	120
atatattcct	cgagagtgcc	aatttcaccc	gacgatggta	cgccgtacgg	ctcgccgatt	180
gggtctcaat	acggacgttc	tttccgcttt	gagcgcggat	tggatccgga	gcgcacggat	240
tgggcttgcg	tcgtgctgct	tcgcttatat	tagagattgc	aggaggccat	ctcgtgggat	300
gacagatgtt	tattccaatc	ctctgaaacc	gcacctaatc	agttgtctt		349

(2) INFORMATION FOR SEQ ID NO:745

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1062 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1062

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:745

ccttggacgg	tcccctcaat	atattgtctca	gaaatggatt	ccttctcgtt	tttctctgtc	60
agtgctaaga	caaagataga	catacgaaac	cataatgcga	taatatctat	gctaatacat	120
tcaatgataa	tcatatccat	gcattagaaa	gccgaaaaat	cacttttccg	gtatcaaaca	180
ggatattgag	atgaaaggct	tttgagcaaa	gggcttcttt	tcgggtggagg	aagttttgtt	240
ttcaaaaagg	aaagatcaat	agtgatatat	ataccgatgt	cttactgctt	ccatacccca	300
tataaatgga	aattctattt	atccttattt	tcatgaacac	ataaaaaaga	catggaaaaa	360
ggattcaacg	cctacgtagg	tggaatgtat	ccgtattgaa	taatataat	ctgcgaggtg	420
agttttccat	gtcgatgaat	gaatgaactt	aagatggctt	atcctacgag	tataaacgag	480
gaaacagccg	tttaagagta	ttcaggcctt	acattagtct	gatgaaaaac	aaggggggtat	540
ccggtttaac	ataggctctt	atttttcctc	ctatagacaa	aaaacatccc	ggaactattg	600
agagagaaat	ctctttttta	tattgagcca	catgcttaat	cgaattagta	atgagtaacc	660
agcatcgggt	aatgctgtct	gtctctaagc	tgtttctcct	tcaaccatcg	attacttttc	720
tcagcagatt	ttggcaaagg	atacaataac	ctccaattac	cctcaaaatt	atcgaaccct	780
tttgaaaaag	gtttaaggga	aacttatcct	atgcctattt	cagcttggtt	aacggctttc	840
gatgtatggc	aatttaagtt	atatcaagga	tagagatacg	caattaccgt	cacaacctca	900
aagggactat	tgatcagtaa	tttttatcaa	gtggagggatg	gagcaataca	ttaagaacaa	960
acgcctattt	gagtaaggga	tcggcacctt	ttcattggac	ataaaatata	aggtaaatat	1020
acgctcagca	acacaacctg	atgcgtgtag	ataaagaaga	cg		1062

(2) INFORMATION FOR SEQ ID NO:746

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 667 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...667

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:746

gccggcaatc	tggccaatct	caaggatata	gagtccaagc	cgaactatct	ttcgtaaagg	60
cggatatttg	caatgccaat	acgctgaaga	aagtctttct	cattatgcca	tcgacggagt	120
cattcatctg	gcggccgaaa	gtcatgtgat	cggctctataa	aagatccttt	agcttttgcc	180

cgcaccaacg	taatgggacg	ctgacgctcc	tgcaaacggc	caaagaggct	tggcatgggg	240
aatacaaggc	aagcgtttct	accacatatc	gaccgatgag	gtatatggag	cattgctttc	300
gacggtacgc	tgtttacgga	agaaaccaa	tacgaccac	atttccctat	tcggccagca	360
aggcttccag	cgaccatttt	gtccgggctt	atacgatact	ttcgggtctgc	cgacagtgat	420
ctccaactgc	tcgaacaact	agggccctat	caattcccgg	agaaactcat	tcctctcttc	480
attaacaata	ccggcacaat	aagcctctac	ccgtctatgg	gaaaggggag	aacgtccgta	540
ctggctctat	gtcgaagacc	atgctcgtgc	catcgatctg	atattccacg	gggcaagaat	600
ggcgatacct	ataatatcgg	tggctttaac	gaatggagaa	catcgatctc	atcaaggtga	660
tgatccg						667

(2) INFORMATION FOR SEQ ID NO:747

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 649 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...649

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:747

gaagaccgtt	gcctgtcgtc	gactctacag	gatccccaac	aagctgacac	gcttcccagt	60
cgaggattga	ccggtgcacc	gtacttaagc	accagggccc	gccagactga	atcaaagagg	120
tgaaatgttc	gaagctgtcg	cgataatctc	tgccgtgccg	tatatatcca	tatgatcggg	180
atcggcagat	gtgatatagc	cataaaaggt	ttcagatggg	ggaatgaacg	atcgaattcg	240
tctgctcgac	gactactaaa	tcacttttgt	ccgatagcaa	cagattcgat	tgatattgtt	300
ggaaattcct	cccagaaaacg	cattgcagtc	cacatggctc	tgttgagcaa	atgtgccagc	360
aaagtagagg	tcgtagtctt	gccatgtgtt	ccgcgacaca	gagtgcacgt	tccatcgag	420
ttatctcgcc	gagaacttct	gtcgcttcac	cacgcgataa	ccattggatc	tgaagtaggt	480
caattccgag	ggtcggccgg	cacagcaggg	gtgtaaacga	tcaacgaatc	ggtgggagaa	540
aaaagctttc	gggatcatat	tcaggtcatc	actgaaatga	acctcaatcc	tcttgatcaa	600
ttgatcggta	atgggactcg	gagtcagatc	ataccaaca	cattaaatc		649

(2) INFORMATION FOR SEQ ID NO:748

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2241 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2241

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:748

gatcattgca	ggccttatca	tttatatacg	atggaaatat	cgggtggatct	ttcntttgcc	60
accgtcttgt	ccacgggtctt	catgattata	aacatagcaa	accggatatc	cacaacaaga	120
cattgatgcc	ggctctcgaa	agtccgtctt	cgtacccac	gtaatctcct	acatctttgc	180
atatgccatg	ctggggcggc	actgctcgta	ggcggctact	tcctcttttg	caagcgcaaa	240
cacaagaggt	gaatgc meta	gtcatgatgc	atacgactga	caatctggtc	tacagggtt	300
tgcttttttg	atgacgggac	tgctattagg	cgtattttgg	gccaaactgc	atggggcacc	360
tattggaatt	gggatccgaa	agaaacatgg	gcgcaataac	cgtattcagc	tacttgctct	420
acatccatca	ccgggtccat	ctcctcgagc	ttttgcccac	tccttggtat	tgctaactcg	480
cagtttctct	tcctgcaaat	ctgctgggtat	gggggtcaact	accttccatc	cgctaaagat	540
ccagcattca	tacctacaca	cgttgaattg	cttgccctgca	tagattgtaa	agatcatggt	600
attgcatttg	catatgccga	tatagcagaa	cctcggcgaa	tctcaagcca	tagatacaat	660
tccgggtctat	cttctattca	agaggaggaa	aaacagcttt	tctcggagaa	atctcccttg	720
ctttttttggc	ttataattgt	ttctttgaag	tcctaaaatg	agacctcttt	ccaattcgag	780
actttctttt	ggggattcgt	cacactactt	agtaatatcc	ttttcaacaa	tgaaaaaacg	840
ctcgtaatag	tcgttcaccc	cgatttgacc	aaatccgtta	tcacaaggct	tgggccaaag	900
ccatcgaagg	tgacggcact	atccaccatc	ttacgaacag	tatccgaacg	gacaaatcga	960
tctagcacat	gaacaagccc	gctggaggct	catgaccgca	tcgtcttcca	attccccctc	1020
tattggtatc	agctccctat	ctgctgaaga	agtggatgga	cgagggtctt	actgagggtg	1080
ggcctatggt	gccgggtggag	acaagatgga	gggtaaagaa	atctgtgagc	agtctcctgc	1140
ggatcaccca	aatcagcttt	tgccgaagga	gcacagaatg	ccacacgctg	cgaagctact	1200
tgaatgtatt	cgacgggata	gctgcttcct	gcgcgctcga	ttcacgggct	accatgcctg	1260
ctacgattcc	tacatcctcg	cctgccggaa	atgctgccgg	ccaactgcga	agcctatctc	1320
cgcttatcaa	aggagaatga	atacagaggt	aatagccatc	attccggctc	gattgcttcc	1380
agccgattcc	cgggcaagcc	actggccgat	atgcttggca	atctatgac	caacgggtac	1440
atgagcgaat	agtcgggtgtc	gtcccccggt	cgtegtagcc	accgatgacg	aacgtatccg	1500
tcaggccgtg	gaggacttcg	aggagaggtg	gtgatgacgt	ccccagagtg	cagtagtggt	1560
acagaacgtg	tcggggaggca	ttcgacaaaag	taggtcgggg	agaaaagatc	gtcctgatct	1620
gcaaggcgat	gaacctttta	tccaaaaggga	acagatcgat	ctgctgtttc	ggccttcgac	1680
aaaccagaaa	ccgatatagc	tacgttagca	gaagtttctc	gtctgacgta	agcttcgagc	1740
gtttgaacaa	tccaaacagc	ccgagatcgt	attggatcat	ggaggctatg	ccctttattt	1800
cagccgctcc	gtttcccata	tctcaggggg	gtacagcctg	actcttggtg	ccgtcggcat	1860
actactacaa	gcatacggg	atctatgcct	ttcgcccgac	cgctctccgc	agataacctc	1920
actgccacaa	agtacggcag	agcaagccga	aagtctcgaa	agcttcgctg	gctggaatac	1980
ggctatcgga	ttcgagtgtc	gcaaacacac	agagtacgat	aggaatcgat	acgccggagg	2040
atatggagaa	ggccatagct	atctccgttc	gcagggaatg	gaatgacaca	tctgcgacat	2100
tatatgtata	gaagtatata	ggatgagatg	attgacgatc	tgactcgaga	aaggatctcg	2160
atgcggccaa	tatcgtagag	gtcgtaagcg	acttatgttt	cgctcgtaag	cgtggagtga	2220
actacctcgg	cttgggtcct	t				2241

(2) INFORMATION FOR SEQ ID NO:749

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 822 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...822

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:749

```
cgtgccggtc tgctgactac agaccatggc cccatagaga ctcccatctc atgccggtag      60
gcacggctcg gagcgtgaag gccgtacaca tgcacgagtg gaagaggata ttcgggctca      120
gattatactc ggcaatactt atcaccttat ctccgtcccg gattggatgt gctcaagcgt      180
gccggaggct tgcacagttc aatagctggg agcggccttt gctcacggat agcggagggt      240
ttcagtgttc tctttggcgg agaatcggaa gatcacagag gaggggtgcga ctttcgttcc      300
catatagacg gctccaagca ctttttttca cccgaaaggg tcaggacatc cagcgcgtta      360
tcggagcgga catcatcatg gctttcgatg aagttgcccc ggtgatgccg accgcgaata      420
tgcacgccgt tcgatgctcc taccggaagg tggttggagc gttgcctgtg tagaatgcgc      480
gagacggagc actctatgga tatgaacagc agctattccc catcgtgcag ggatgcatca      540
tcccgatctg cgccgcccgt cgcccgagat ggtagctgcc gtcgatgcgc cggaatgcc      600
atccgaggat tggccgtggg agaaccgacg gaaaagagta cgagatgatc gaactgacca      660
acgagatcct tcccaaagat cgtccggcta cctcatgggg gtaggtactc cgatcaatat      720
attggaagcg atagacgtgg tgtggacatg ttcgactgca tcatgcctac gcgcaacggc      780
cgtatgggca gctctttacc tgcacggacc atcaatatcc ga                        822
```

(2) INFORMATION FOR SEQ ID NO:750

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 454 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:750

```
gggatctcac cacagggggtt ggtggagact gtacggaagc ccagatcgga tagcaatcgg      60
gtaccgattc gcggatgata gtatcccaga agagtacacg gggtcggccg acttccaagc      120
gttgtggatg attttgcccc agagggtcgc gcatcgatct ctttctccca cttcggttct      180
ttggcatcga tggggctctgt tgtttatagg gtttgccctc gacaacggca cgcataaatt      240
catcgcgata ttcaccgata cgttggctcc cgtcaccttg ccttcggtca ttttgcatac      300
atgaaggatt cngaactcggg atgcttgatg gatacggaca gcaaaagtga ccgcgacggc      360
cgtcttgagc tacttcgcgc gtactgttgg agagcgttcc atgaaaggaa ccagaccggt      420
ggatgtgagg gcggagttct tacgggcgaa cttt                        454
```

(2) INFORMATION FOR SEQ ID NO:751

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1205 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1205

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:751

gctttaaata	ttgcagccga	tggaagtttt	accatcaaga	aagaatttag	ttggatggct	60
ttgaaattaa	agatacagat	gttcttgctt	tcgtacacat	ccaatgtcca	atgcggaaaa	120
ccattctatt	atcaatgccg	ggcaagaagc	cttgataaag	cagagcctac	agctacagaa	180
caaattgttg	ctaccctctt	gtcaaaagcat	atgttcagaa	tggcaaaatt	gttgtagagg	240
aagagattcc	aagatggaag	tattcaatgc	aactgggtcaa	cttgtcaaaa	atgatccctt	300
gtccccgggtg	tctatgttgt	ccgtataacg	gcaaacgggtg	taagtatttc	cttaaagtct	360
tggttccttg	atttatagag	ctaagattta	aagaaaactg	cgctttctta	atgttttata	420
agaaggcgca	gttttcgttt	tctcattcca	ttctccgggt	ggtcgtcgaa	ggggactgcc	480
tgtcatcttt	aaacgaggaa	tatcagctcc	cctcacacaa	cacgatgtcc	acaaatccag	540
ttcatagcct	atttgagacc	tttgaaaaaa	gagaagggtt	cttatatcat	aaaggcacta	600
aaaatcagtc	gattgacaat	gaaatctcca	agaaaatccg	tgcgacagtc	tcacttatat	660
agatgcggtc	aatgggtctga	tatatcaggc	tgttggtggat	ggaggatagt	acacatagtt	720
ttgcacctga	aacaacgttc	atactaaact	aaaaacaaaa	gcattatgac	tcctatcctg	780
aacacgtttt	ccccgagttc	aaactcaatg	cctatcacaa	tggcgaattc	aaataatcac	840
caacgaagac	ttgaaaggca	agtgggtcttt	ggtcgttttc	taccgggtga	ctttaccttt	900
gtatgcccga	cgggaattgga	agacctggcc	ataaatatga	agaattcaag	caacttggag	960
tagagggttta	ctcttgacgt	gcgataccca	cttcgtacac	aaggcttggg	ccgacgcttc	1020
tcctgctata	agaagggtaca	gtatcccatg	ttggccgatc	ccttcggtgc	actcactccg	1080
atctggtatc	ctgatcgatg	atgttcatat	ggcttaccgt	ggctcttcgt	gattaacccc	1140
gaaggcatta	tcaaaatcgt	agagctgaac	gacacacgta	tgccgtgatg	cagaagagat	1200
cctcc						1205

(2) INFORMATION FOR SEQ ID NO:752

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1482 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1482

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:752

agtcggggtt	ctttnaagat	actgtatctg	tatgcgnatn	nncagtccta	attgcgaaat	60
acacgggatt	ctcctgttcg	gtaatgacga	gcatgaacgg	cctcgatcag	ctgagatact	120
tctactccat	aggctccgat	gttttggcag	ccgatgctcc	cacttggccc	ggaatgagag	180
agaggttctc	tataccta	agttattctc	cacggcataa	gcgacgaagt	cgccccatac	240
cataccgacc	ctacacgcaa	aagaatgctg	tcctgatcct	tgtgcagttc	gggtgtaccct	300
ttacttcgga	atgaagcagt	ataccatgaa	aattagcgag	gaaagcagat	tgctccccctc	360
gccaatagtt	tgtacgcgac	aatcttgaaa	gattcgtctt	tcaccaaccg	atcaatatcg	420
gcgtcgcatg	tgtagtcaat	caccaatctg	tccgggctgc	aataccgaat	gtattgcgct	480
tggagagtgg	tagtcttgtc	tgatgtccat	tagttagcac	gctcaagcag	ccatgcatct	540
gaaaattcgg	agcatagcgt	tccttgacgg	cctcacgggc	agcgatggct	cttcgcgtga	600
aggggaagctg	gctacgatca	cacgtagcat	cccctgtcgt	tttctgccaa	aataggggta	660
taaccttcag	attccaagcg	ttcttttagag	aacgagcatt	cgttgcattg	cggaagctgc	720
ctaccactac	actgaccgat	ccaatcgaga	agcatcttcc	ccactgtaag	cagagagctt	780
ttctgacgga	tttgtagcatt	ggtagccggt	ttagaaacta	tcggacgagt	ttcatatcct	840
tgtcttcagc	ttgggcaatc	tcacgttctt	tggcctgctc	gtagcttggc	ggtaggcact	900
ttgcttggat	ttgcatgagc	cgaatgcaac	ctcatagcta	tggcggctgc	caaaaacaacc	960
atcttattca	tctttttttc	gtttgagtta	ttaatactcc	catgcgcaaa	gataagagttt	1020
tcaatgaaac	agccatattc	gggatcgact	catgcaggcg	tacgtcttct	cactacgctt	1080
gtggacgttt	gtatatgcct	ttttcctatc	actattttat	tggataatag	ttggccgaat	1140
cacattgtct	ttatctatct	cgggagctat	tacattctgt	cctcaaagat	tatatcggat	1200
gtcattaaat	gatgcgaggg	caatgttttt	tattttcttt	gcgtagatat	caatctcaat	1260
acacactaaa	aacatcgatc	atggatgtta	ttctctcgat	tctacccatc	gttctcctca	1320
tcgtttgatg	cttgggctta	ggatggcggg	tgacaagagt	gctgttctgg	cattgtttgt	1380
gcagcattgg	tagctttatt	cgcagctcct	gccctcggat	tgcctctaca	gattttacc	1440
ggacaggtgt	ccggatgggc	ttttgtggga	ggtgccctca	ag		1482

(2) INFORMATION FOR SEQ ID NO:753

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 465 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...465

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:753

gcaggatgca	aaaaggaacg	tcagtgcggc	gaaaaaaatg	agctttctgt	tgatcatctgt	60
ttttgtctta	tgatggactt	aacctcgcaa	agatagcctt	ttctatatat	aatgtagttg	120
ccgtgtacag	attccagtta	taaatgcaca	ctaagtcaga	tctagtaaga	agcgttcgaa	180
gggggtgggct	atattcgggc	tgaggcattc	aaaacagcgt	tctatatggg	gctgtgtcaa	240
aatccaaaat	ggattttcca	acaaaaagac	acaaatgcca	ccttaatcat	atcggaaaac	300
cgctatcaag	taggatgatt	ttgtcctttt	ggtagcgggt	tcttatacaa	attatacaaa	360
tgatagtatc	ctttactcta	aacggaattt	tgcacactct	catctatctt	ctgtgatcag	420
aagataggca	aggaatcggc	tgatcggctc	gtaatgggtga	gggga		465

(2) INFORMATION FOR SEQ ID NO:754

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 563 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...563
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:754

ggcagtggca	ctttctccat	atttgtcgaa	cgcgccctgc	gggagacctt	cattacaaga	60
aatcgcttcg	ttacatccat	cgctctctcc	ttcccggtag	gaatggaaag	acatgattcg	120
taaggaaactg	gcagaaaaca	gacctgttat	tatgccggtg	cagacggatc	gatgggacat	180
gctttcgttt	gcgatgatac	gaaccagacg	gaacgttcca	cttcaactgg	ggatgggggtg	240
gcatggtaac	ggtaatctct	atctcaatct	actcaatccg	ggttcgcttg	gcacggcgca	300
ggcgatggag	gctactctac	tgaccaagag	gttgtcatag	gcaagagccc	ggccagcaat	360
gaagtcceccg	gtatcggtac	cggatccgac	cacacgcttc	tatggattgg	caacacaata	420
tgtctgatga	aagcactttg	actgagtgtg	aaaatcaaga	acctactcca	catatgcagg	480
gggatgtgaa	attggcttat	cgcctgacgc	ttcccaatgg	aacggaaacg	actaaccac	540
cgtcaccgtc	cctatcggtg	gga				563

(2) INFORMATION FOR SEQ ID NO:755

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 515 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...515
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:755

tgcccagtgg	acctatatct	acgggaatcc	cctgcctcag	ggattgggtc	gggcgctttg	60
tttacgaata	atacggatac	gcctctttat	acggaagggg	ttatttgaga	tatgccgcag	120
ggaagagatc	ttcccggtgc	gatgtcgggc	cttgttccgg	gaaagatatg	gaaacggagg	180

cttatgaaaa	ttctgttgaa	gacaggtatt	tcggtttgcg	ggagatagcc	gccggcgcct	240
tgggaatgat	gttccgtgga	aatccgcatt	gcgtgcattc	gtatcggaat	ggtggattca	300
cgggatttta	tagagggtcg	tacttccggc	tctacgggta	tgccaagctt	atccatctgc	360
ctaaaaaagc	gatggcggct	tcggcacggc	tgccaatgct	tttttcgaca	tatcccggga	420
ttccgtactg	atgctctctc	tccgctttct	tatatagccg	gtaaaaatgat	ggtggtgagg	480
gcattcgaag	aggggccgct	tgttgccgga	acctc			515

(2) INFORMATION FOR SEQ ID NO:756

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1905 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1905

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:756

ccgcgttgan	aaaaaggcga	acggcatccc	ccttgaacta	ttgcacaggt	gacataaagc	60
gcggtaccat	taccttagtg	gttccaggcc	gtgggcaatc	tttccaagaa	attgnccgaa	120
ctcgaagtcg	gcgactatat	cacggattgg	taggtccgct	gggacagagt	acgcatatcg	180
aaaaggctcg	cacagtgttt	gtgccggagn	cgggtgtgggt	gtggctcctt	tgctcccgat	240
cgtggggctt	tccacaaaagc	aggcaaccgt	gtaattgtcg	tattggctgc	cagactaaag	300
atctggttat	ccttgaagaa	caaatgcgag	ccaatagcga	tgagtgatca	tcatgacaga	360
cgatgggtct	tatgggacga	aaggcctcgt	aaggatggag	tggaaaagcgt	tatcaaacgg	420
gaaacggtag	acctctgcgt	tcgatcgggc	cggctgtgat	gatgaagttc	gtttctctcc	480
tgaccaaacg	tacgagatac	cgaccatagc	ttctctcaat	acaattatgg	tggatggcac	540
ggtatgtgtg	gggcttgtcg	tataagcgtg	ggaggacaga	cgaaattctc	tgtgtcgatg	600
gccccgaatt	cgatgcacac	caagtggatt	tcgatgaatg	atcatgcggt	tgggcgcata	660
ccgagagatg	gaataacctt	attttcgcc	tattgacatg	actacagaag	aacttatccg	720
actgcgtcgc	tctgaccatg	gagagaggag	ctgcgcaacg	cgctcaaaaa	taaagaacgc	780
atgtgcgtcc	acgggctgaa	atgcccgaac	tcgaccccc	ctatcgtagc	tccagatcaa	840
tgaagagggtg	aatcgcgggt	tgtcccgtga	ggccgctatg	gcgaagcctc	tcgttgtctc	900
gattgtccgc	aaccgagctg	tatggaagga	ttcctgtgag	tatcaatatc	ccgaccttta	960
tcaagcagat	agaagtaggc	atatactggc	tgacagcatc	actttgcgag	agacaagctc	1020
tttgccggcg	tgtgcggacg	tgtctgtccg	caagagaagc	aatgcgaaag	ccggtgcact	1080
atacgaataa	gaacaaaccg	gctgttgcca	tcggtttctt	ggaacgcttg	ccgcagacta	1140
cgaacgcgaa	cagggcgcac	tcaaagtcc	cgaaatgctc	ctcgcaacgg	tatcaaagtg	1200
gctgtgatcg	gaagcgggtc	ggccgacttt	ctttctccgg	agacatggcc	aagttgggct	1260
atgacgtgac	cgtatcgaag	ccctgcacga	aatcggagga	gtgctcaagt	acggaattcc	1320
ggatttcgtc	ttccgaatag	tatagtcgat	tcggagatca	atcttctcga	aggatgggcg	1380
tacgctttga	gacgaatacg	attgtcggcc	gaacgatcgc	aacgatgacc	tgcatgaagc	1440
aggatttcgc	ggtgtattcg	taggaagtgg	gccggtctgc	ccaatttcat	gaatatcccc	1500
ggtgaaaacc	ttgtaggagc	atgtcttcga	atgaatacct	gacgcgcgtc	aatctgatgc	1560
atgcgagcaa	gccgacagcg	acacaccctg	tttcaagggc	aagaatgtag	cttgtcacgg	1620
gggcggcaat	acggccatgg	actccgttcg	tacggcctcga	cgccctcgagc	agaacgtgcc	1680
atgatcgtct	atcgacgcag	cgaagaggaa	attgggaagag	gtgaagcagc		1740
ccaaggagga	aggaatagag	ttccgacact	gcacaatcct	atcgaaatata	tcggcaatga	1800
acgaggccga	gtgctgcgat	gcgcctgcaa	aagatggagc	ttggcgagcc	ggatgcaggt	1860

ggcgtcgtcg tcctgttgcg atcacggggg ctatcgagga gatcc

1905

(2) INFORMATION FOR SEQ ID NO:757

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 843 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...843

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:757

gccatgcttc	gtgccacgac	acaggaggag	cttttcgctc	ttatggacgg	gtggagaaga	60
tgataggatc	ggctgattca	gcggcggtat	agtcgcttga	caaagctccc	cctgccgatt	120
gcttcaatcc	acaggctctc	gcatgcaatc	cgtcaactcg	gcatcatggt	tgccgggtgaa	180
catctcgttg	tggcatcgca	tagcaaccag	agcagatgat	cgaaggcggt	cagctgttcg	240
tccgaagggc	ggaaacgagt	gtctcggcac	aaaggcgag	gttgggaaag	agatgaccag	300
tacctttctt	ccctcagggg	taatggagac	acgcatactt	ctggatccctc	ctcatccggt	360
ctctgctcga	tcagattagc	tttcagcaga	cgcgcatgac	ttctgcgccg	gatgtttttt	420
ccatggcatt	gaggttgttc	actctgtctt	ggcatgctc	tcaccgttca	tcaggctgac	480
cagataggta	attcgtcttc	ggtctgtaat	ggagattccg	tcagagcttt	cttgatataa	540
aacgggaata	acgatggagg	aggctgaccc	ctcgcgctat	gttcttagtc	ctgctgctcg	600
ttcccgggtg	acagagacaa	cttcttcctc	ctgtttctct	ttttgccaca	gcgccaactt	660
aaaaagtctg	caaagtcttt	tatttcgggt	cgtgcgagcc	tccgtcgtgc	aaactttcaa	720
atgcatcgag	gtagtataa	gatcgaaaag	cagttttttg	tacttcataa	attactccga	780
ttgataaatc	gtccgttcga	tgtaatcctt	ttgaagcata	aatgtacatt	tttactgaa	840
aag						843

(2) INFORMATION FOR SEQ ID NO:758

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1068 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...1068

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:758

gccattctct	cggctacgat	cattatactc	tataccctct	atgccacagc	ggcgaagtca	60
tatcgaggaa	tggcccgtat	ctgtacgtat	ctgtctttcc	gttgccaccg	gacttttcca	120
ttatctgaga	cacgtgatag	tgaagggtgt	cattgcaatc	cgaccgatat	gctctatcag	180
gaccacgggc	tccagcttcg	gtagtgtgt	ggatcattct	ttattcgata	agcccttatg	240
tcgcaaggcc	catagccata	ttcgatttcg	acggtacgct	gacccgatgc	gatttttgct	300
tccctttctg	cggcaagccc	agccggttat	tctcttttgg	ctcgactgcc	tttctatctg	360
gccatgtgga	tgtgctacaa	acttcggctg	gccccggcca	ccggacgaaa	gcagccatcc	420
tttccacagt	cttgaaagga	aaagggaggt	ggaatgccgg	gcaatgggac	agcgattcgt	480
gcctgctatc	aaagcattct	tcgtcccga	gcccttcgct	gtttggaatg	gcacgcagg	540
aaggacatcg	gctgggtgcta	ctgacagcct	cgcttctgcc	ttgtgtgggc	catgggctga	600
aaagacgggg	tttcataccg	tcattgctac	ccttcggaga	taaaatccgg	cattctgacg	660
ggtcggttcg	aaggcaataa	ctgcaaggaa	aagagaaaat	ccacaggttg	gacgagcct	720
tggcgattg	gcgagttcga	tctcctatgg	ctatggcgat	agcccctccg	accgcccctt	780
gcttgccctc	gcacacattc	ctactataga	agattccctg	ctctatagcc	tgcgcccgt	840
ccgtatcggt	tggagattgt	cgattcatcg	gtgtcccgat	ggtaccatt	ttcctaccg	900
accataaacc	gccatcagag	cagaaaaaag	cctcttctgg	atttccacat	aaacgactgc	960
aatgcaacgg	tttgtgattt	tcagttttac	acataaattt	tcccggcctg	gaaaaaatat	1020
tttccagggtg	ggaaaacatc	ttttccacgg	gtggaaaata	ttcttttc		1068

(2) INFORMATION FOR SEQ ID NO:759

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 912 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...912

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:759

gccagatgat	agatttat	cagatcgata	caggatcttc	tctgcttctc	cattcgcaga	60
tgaaggtatt	cgcgcgggat	ttccctctcc	tgcacaggct	atatggatat	tgccattgac	120
ctgaatcatg	agttgataac	tcacccaaca	gcacgttcta	cggaagggtg	aagggaatt	180
caatggaaga	cggccagtgt	tcgacggcga	tattcttgtt	atagacaagt	cccttgaagc	240
gcgggtggcg	atatggctgt	ctgctttttg	gatggagaat	ttacctgaa	aacatccgca	300
tcaaatacga	agagattcta	ctcgaaccgg	ccaaccccca	ctacctacca	tacatgtatc	360
ggcagacaac	gatttcgtca	tctgggggat	cgaacctatt	gtattcataa	aataagaaga	420
tgatcggcct	atgtatgcc	tttagactgc	aacaacttct	tcgtcagttg	cgaaagggtg	480
ttcgaccctt	gtccgaaaac	aggccggctg	ttgtcctctc	caataacgat	ggttgatatc	540
cgctcgcagc	aatgaagcca	aagcattggg	gataggggat	ggacaacctt	cttcaagggtg	600
caggacttga	ttcgccggca	caatgtggca	ttcttcactc	gaacttcatt	ctctacggcg	660
atatgtcccg	acgaatcatg	tcgctttatc	ggaacttgta	cctcggatgt	cgatctattc	720
gatagacgag	tgtttatgga	tttgagagga	gtgaaagata	tatgtcgtat	gccacatgat	780
agtcatagag	tccgcatgt	acggtatacc	gtgagtatag	gtgtagccga	tacatgacc	840
tgtccaagt	gcatacaaat	atgccagagt	atgcggttac	agcgtatgcg	catagactcg	900

(2) INFORMATION FOR SEQ ID NO:760

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 617 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...617

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:760

tggggaacga attgaacacg ccggcgagga gcgaattgaa gccatcggca atactccgcc	60
cgatacacgc ttgatgtatt tatcaccctc caccggttgc ccgaaatcat cgaattggcc	120
gtaatatccc ccgttgcttc gatggcttaa taagatagat caaccctatg gcgataaagg	180
aagacagatt caggctaggc cgtatttgaa tggaacaggg atattcagca gtgcgatctt	240
cgtcgctcca taccggagag atccactcga ccgaggatgt aagccaaaac ataacgacga	300
gcagaccgag tacgatggag ctcatacgaa tgtatttgtt tttctcttat tgaagaagag	360
gacgcttacc aagacgagag cagcaatgct gaattctgcc agttgccgaa agtcccgtcg	420
ctcatcgccg cattgcctcc tcgcatgaga taatccccac tttgatcaga ctacgaccga	480
tcagcaagac acgattcccc aaacgagagg cgtaatgata tgcttgagat aacggaagga	540
ccggcttgac gatcatctct accggagctg ccgctatcgt acaaccgata taagtggcag	600
gcccgcgggc caggccc	617

(2) INFORMATION FOR SEQ ID NO:761

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 510 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:761

gcagcaccct	tcgttccttt	ttcctacgga	tgcagcagaa	gttcttcggc	aagtgcaca	60
aagagtctgc	atccatgcc	cagtctgcat	actgttcggc	acagatccct	gcccataaa	120
gcgacgggg	actccaccc	gtcggatcgt	gggtggtagt	catggctctg	cataaactcc	180
atgacggccg	atccgaaccg	ccttggtatg	aaccatcttc	gacggagatg	atcgtatcaa	240
acttcttgcg	atgccatgga	gcatntcctc	gtcaagcggg	ttgaggaata	ccattcgtag	300
tgggctgcag	atacaccttt	ctcagccagc	cgttccacca	cttctgtacc	atattgccta	360
tggggcctat	ggagaggaag	gctatagctt	cgctccgctc	agacagcgtc	ctcgcgctat	420
ttcgaccagt	cgcgaggtgt	tcgccagtcg	gtcaagcacc	ctttgccacg	cgggtaacgg	480
atcaccattg	gccgtcatat	nccttgnatg				510

(2) INFORMATION FOR SEQ ID NO:762

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1414 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1414

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:762

gggaaaagat	gcaagggatg	ataccccaga	tcaggcacgg	ttgacatcct	gatcaaaaag	60
ctcggnaagc	gggtcatngc	aagccattcc	gatgaagcac	ccacttcgat	catatcgggc	120
aacatcttat	gtcacagcc	atgtaagtct	gtactccttc	gatacgaagc	agattagagc	180
cgacaccctc	tatatggccc	ccatactaag	cagcatcttg	caaagttgct	gcagatatgg	240
ctcacggcag	cattataaat	agtggtaata	ccatcagcaa	ggacagctgc	cattggatat	300
tggcagtacc	cgtcacagaa	gcttcgtcca	gcagcatata	agtccggaaa	gccggcttgc	360
agtcaattca	taggcttgca	tatcggaatg	gtgtcgcacg	tggcacntaa	tgcttgaata	420
cctacaagat	gagtatctaa	ctgtggcggc	cgatcttatc	tccccctggg	ttcgggaaaa	480
tggcgtaacc	aagcgactga	tcagtggccc	aacaagcaag	accgaaccgc	gcaaggcgca	540
ctcttttcga	gaaactgctc	gcttttgata	tagtcgagat	tcacattaca	gcttggaaaa	600
cacaagtatc	gcgggtgggt	ctttttacct	taaccccatg	tttcgaagca	ggtcgatcag	660
gttggttcaca	tccaatatat	cggggagtta	cgcaccacaa	cctcctgatc	ggatcaatagc	720
gtagcagaga	tgatcgcaaa	gcttcgtttt	ttgcaccctg	gacgagaatc	tcacccttga	780
gactttgccc	ccttctatta	cgtaagatgc	catagagata	atgtgtttta	tattctgtat	840
gattatttcc	gccggaatac	cttggtccgt	ttgggtgttg	tatgtccttc	cgatccgaag	900
cattcggtat	cgtcagatga	caactctcct	cgtcagctct	atgcgccctt	cggacagttc	960
gtacaaatcc	ttgaatatct	gtagtcacct	accgtatctt	tgttccatgt	cagatacgaa	1020
cgtttcatcg	gttggcgatg	agcagctcca	gcgcataacg	ctcttctccc	tgctccatgc	1080
acaagccttg	aggatcatat	cctgtatgag	atggccgtag	tgccgattac	gatgtcgttg	1140
gccgagtagc	ttacagcttt	aggcttccgt	tcgagcgctc	cggactgatg	atctccatcg	1200
gaataatcga	tatccaactt	gaatcggaca	taatagccag	atgatcccaa	agaatatgct	1260
tggctctact	gtttcccgcg	gttcgggaaa	catgtttccc	atgattgtaa	tgatcgtttg	1320
tgccagcgat	tcggttcgtc	acgatcaccg	attgtcatgc	aataatttac	cagttttgga	1380
tattcctgcc	atattccgga	atagccaaag	gttc			1414

(2) INFORMATION FOR SEQ ID NO:763

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 840 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...840
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:763

tacatacggc	gctgacntc	gacgtaggc	tcgaaatttt	cgaggncgat	gtgcgaaaag	60
cctccacgtc	accatcctct	gcacgccata	aagccgctct	tgtgaagtgc	cacggtcggc	120
tcggaaatga	acctccttgc	catagcgtgc	accaatagat	ctgtcagttc	actgagcatt	180
tcctgccgaa	aggaggcata	cgtttttgca	tcgggtttat	atthttgaggt	ttcaccgttt	240
gagcttcgtg	tttacttggg	caaatgccgt	gtatcctccc	accggaagca	aagcagcgac	300
catgccaacg	ccagcgatag	ctgttttctc	ttcttcatat	tatactattg	aatttagaat	360
gaatctctcc	aaatgtaacg	acaatcgagg	agtaggatat	aaatthttgaa	taaaaagcag	420
ctatagagtc	acgcagtagc	gthgtggaaa	taaaaagaga	cgtacctccg	gaggggagat	480
acgtctctgc	ttttcgthtt	tgtatctgct	ctgtatgagc	aggggagtgat	aatcagggat	540
agcaaacgcc	ctgagctacc	atagccttgg	caaccttcat	gaagccggga	tattggcacc	600
cttcacatag	tcgatgtagt	tgccgtcttt	accgtattaa	cgcactgctc	gtggatgtct	660
tgcatgatct	ggtgcagcca	cttgtcactt	cttcattcgt	ccaaacgagg	tgcatagcgt	720
tctgcgtcat	ttcgaacctg	agcaagaaac	accacctgca	ttaacagcct	taccgggagc	780
gaaggcatct	tggtttgctt	acatagtatt	cgctggcttt	cggccgacaa	ccctgttaga	

(2) INFORMATION FOR SEQ ID NO:764

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1943 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1943
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:764

cctcattttg	aagaaagcgg	gcaagcttcc	aatggcctgc	actctgtctn	gacgggcttc	60
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gnagaccttt	ctctttgtgc	cngaacagga	catcgcagat	ggcgtacatg	tgcacgatgc	120
cattgatagc	aagcgcacga	tgatcgtgtg	tgtatggctc	ttttgccggc	cctgctcttc	180
ggtatgtata	atgtggggta	caacattata	tggccatcga	tgctcccgtg	gtattttggc	240
cggctttctc	ttcggacttc	tcgccgtact	gccc aaactc	attgtctcct	atgcgtcggg	300
ttggggatag	agtttgccgt	agctcagtac	cggaaaggaag	aaatcaggaa	ggcttcctcg	360
tatcgggtct	gcttatcccg	atgatcgtgc	cgtagatact	ccgctgtgga	tgatcgccgt	420
ggcgacggct	tttgccgtgg	ttttgccaa	gagggtgttcg	gcgggtacggg	acgcaatata	480
ttcaacgtgg	tctcgtgacg	cgtgccttcc	tctttttcgc	ctatccggcg	gctatgagtg	540
cgatcagggt	tttgtccgca	cggctgatac	cttcggcctc	ggcgcaggac	ggtagcggac	600
ggcttctccg	gagctacacc	tttggggcag	atagccaggc	cgggtgccaa	atgcctgaaa	660
tacataatgt	ggcaggcgac	ccctctccct	gatggatgct	ttcctcgggt	ttatacccgg	720
ctccatcggg	gaaactctac	tctggctatc	ctgatcggag	ctggccctgc	tgatttggac	780
ggggtcgcga	gctggaagat	catgttgagc	ggtttggtag	gagcctcagc	aatgctctcg	840
tattcaatgc	catcggcacg	acggcggcga	tgcagatcac	tcgctgatgc	acattgtcta	900
tggaggcttt	gcttttgggt	tggtatttat	gccaccgacc	ctgttacttc	tgcccgtaca	960
gaaaagggga	aatggatctt	ggtttcttcg	tcggctctgat	ggctgtattc	atccgagtgc	1020
tcaatccggg	taccctgaag	ggatgatgct	tgcgatacctg	ctcatgaacg	tatttgctcg	1080
ctgatcgact	atttcgtggg	ggatagcaac	atcaaagcgc	gcaaagccgt	atgctcaaga	1140
aatcctaacc	gctaaatatt	tcgataaaga	catgaaagag	ataaaaactc	gtacaccatt	1200
ctctatgcct	cgggtgatgg	tattgcgtgg	cggttttgct	ggcttacgtc	tctcagtcac	1260
tgggcgacag	gcagggtgaca	acgagaagat	agacaagatg	cagcagatcc	tccgctctgt	1320
gaagccggaa	tagaagataa	gggcaaagta	atagctcggg	acacggacgt	gacaagcaag	1380
aactgctcat	caatcaggat	ggtagcgtag	ccaagacctt	cagggcgagc	agttggcaca	1440
aaatgaagca	ttcacgctca	atacgcgcaa	gctttcaaat	cggccgctaa	tgatccaagc	1500
atttcgctcc	ctctctatac	gcagagatag	agggtcagaa	gaaatacatt	gtcccgatga	1560
acgggtccgt	ctttgggggc	cgatctgggg	atacattgca	ctgaacgaag	actgcaaacg	1620
atattcgggtg	cagatttccag	tcacgaaggc	gaaacgccgg	gattggagcc	gaaatcactc	1680
gctcggagtt	ttccggtcag	tttatcggca	aagaatcttc	aaagagggcg	aattccgatc	1740
tgttgccgta	gtcaagaaa	gccaaaagcc	gaaggaaaagg	actatgtgga	tggcatttctg	1800
ggcggtagc	tgagagcgat	ggagtgaatg	agatgctcat	atcctctctc	cgtccttatg	1860
cttataccta	atgaacaacg	taaaaaaata	agggtctatgt	cactttggaa	taaaagaata	1920
aggaaattct	tctcgggccg	cta				1943

(2) INFORMATION FOR SEQ ID NO:765

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 978 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...978

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:765

taaaagatta	ggtacttttc	aagaaaacca	tcaagtactt	tcacaaaaaa	ttaggtactt	60
tttattggat	tatcaggtag	ttttgaaaat	agatttatat	attttagatg	gtattttaaga	120
aaacgccttt	cagaggattt	ctccgacttg	ggaaggttta	tcaagtggag	actaaaacgt	180
atgtaataat	ggcaagaaac	cattgcaatt	tgtggtcgta	gagcgaaaac	tgaatgtggg	240
taaaacgcag	gtaaagtaat	gcagatagca	agaccgacgg	ggagacatcg	tgtaactttc	300

gctccttttg	cgaacgtgta	tccaagtcca	ccacattcaa	ccgcaagaag	tcgaggctgt	360
attgaactat	gctacagaga	ttgccaaaga	catgtatcga	acggcgacat	cgtggagttt	420
ggagaccttg	gcacactaat	gcttctttca	aaagtaaggc	ggtagaacag	ggggtaaagt	480
tcaatgctaa	gttcacatcg	aaaagcctgt	tgtcttgttc	caaccttcca	aaaagtactt	540
actctcaccg	atgtaagcta	tgaacagaca	actgccaggc	caaagaaaga	acaaaacctg	600
ctccaaagcc	tgataccgga	agtgggggga	atagcgggag	ggcatataag	aattagataa	660
gcccacactt	aacctttcag	aagttttaaa	accagaatag	agagtttgct	ttgccttgga	720
gcaaactctt	tcttttagac	ttttctgaat	cttgattagc	cccttttggt	catcatcttt	780
gaggggcttt	tgatgggtgc	ggtctcaacg	tcttttagtg	catcggcaaa	aacagtttga	840
gggaaagagc	catctcgtct	tgtttgccga	cacagaaatg	ctccaaatat	tccaaccgaa	900
atgatacagg	tctaaagaga	tatgaaagcc	ttttgtctat	cactatacaa	actccgtttg	960
aatcatcagc	atagtaag					978

(2) INFORMATION FOR SEQ ID NO:766

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 800 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...800

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:766

gaaaacgaaa	tcgactttcg	acgaaacgac	cttcaattca	tctccttcct	actcgtgtgc	60
aatgtagggc	ctgtagcacg	gtaggcagtt	ctctctgctc	gatcgggaagt	cggaattgat	120
cgtgagcaat	ctcataccct	ataggaacag	cggctctgcc	tgtagagtct	gtacgctgaa	180
gtcaacgaag	tattcctacc	ggcagtcggc	ctcagcccgt	ctacgggtac	aataatgtcc	240
gatgagtctg	aggatcgata	tctaagccga	tgaccttgct	ttgcaatgct	ttgcattagc	300
cgaaacccgta	tagcgcaggc	ggtatttctt	gaggttgggtg	aagagaaccg	attcgtgata	360
cggaaatgtc	ccttggcggc	atccactgct	tcaagccgac	gttttgatgc	acatacttca	420
cctcctgcat	ggcaggggtga	gcgtgcggtc	gggattgacc	agtccgttgc	aaaggaagtt	480
gccgtcactc	gtgcatccac	tccgaagtct	cctccataag	cccaatagga	ctttcctttt	540
cgtctgtacg	gaggataccc	tgatccaccc	agtcccagat	gaagccgctt	gcaggttggg	600
gtacttgtag	atagcctgcc	actgccccca	taggttgagg	tccaattgcc	catggcgtga	660
gcgtattccg	aagggatcac	agggcgtcgc	taccggcccc	tccgatacct	tccaaccatt	720
tcgcatcggg	atattgggta	catacatatc	cggattccac	tcccattggg	cacgttcgta	780
gttcccgggc	gcgccatcag					800

(2) INFORMATION FOR SEQ ID NO:767

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 464 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:767

tattctttgc	tcctgagaga	gggctggttt	ctatcctaag	tcgctacaat	tcactatcga	60
ggagaactca	cccgaggagc	aacaagtggc	actagaccag	agctactcgg	caaggtcttt	120
gagaatctcc	tcggagcata	caaccccaga	ctcaggagac	tgctcgcaac	cagagtggct	180
cgttctatac	tcctcggagg	ttgtcaacta	tatgggtggat	gagagcctga	tttcttattt	240
aggagttagcg	atctgggtgcg	ctctctgttt	agaccagatt	tcgtactgca	ggagacaaca	300
aagtgcaatg	cgaagctatt	gcaagcaaac	tcaaagcagt	caaatactag	accctgcttg	360
tggctcggga	gcattcccaa	tgggattgct	cataggatga	ttgagctact	tgagcgcata	420
tctccccaag	agaaaagcta	tatctcaagc	tctttgtgat	cgag		464

(2) INFORMATION FOR SEQ ID NO:768

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1007 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1007

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:768

agcggagatc	cgcgtcctct	tcgatcctgt	cggtcgatca	ggagctttct	caagcggatt	60
cgggtttttc	ccaacgcgca	atcttcaccg	ctggaactag	tataagcggc	acggttacga	120
ccctcagtgg	tgccataccg	catgccttgt	cttggcgata	gggccgctac	aggtgagcaa	180
tgctcgcttg	cttttcctat	ttccatgcct	gaagatgagg	gggtggtacg	gttgggtgtg	240
aacaaacgga	tgagtccgac	ctgcaagttg	ctgtcgtatc	gctaccttca	tttgatcgct	300
ggacgatcgg	gcattccggc	tgcaagctcg	tgagcccaga	gagtgaatct	ttcgcttgcc	360
gtacctcgca	atatgcctcc	ggggatgaag	gagagcctct	cgttttggag	gtaacctctc	420
ccgaaacagg	aaaaaaagcc	gtgattccgt	catggtctcc	ttgccgctgg	tggaacaattt	480
ccctgccttc	ctgcagccca	aacaggcggt	atggaactca	gcacctatct	ggacatgggc	540
agttggatgg	agagacgaca	aaggctgcga	tagagattcg	caacgtcgtg	ccggccctct	600
ccgattgcat	agcgtcacca	cacgcaatcc	ggctttgctg	ccgtacccga	ccggacggag	660
ataaagcccc	gcggaagcac	actattcgga	tcgctgtgga	tccgcagggtg	atgaaggctg	720
aggggtggca	gagtaagctg	ccgatatttc	cattatttgc	aacgatccgc	aggctccgct	780
acgtgtatca	aggtcaaagc	cgaactgtag	cttttccccg	tagagctgct	gccagcggtg	840
ctgcaagcga	gattgcccgc	agatctgata	aacagaacat	tactatggac	gaactacttc	900

atcatcccgga aaatgatgat tgctataagg gctgaaagtg aacaaaggcg tttccaatat	960
gcccatcatc aatccctacc gaataggaca agacgcaaga agcttga	1007

(2) INFORMATION FOR SEQ ID NO:769

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2523 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:769

gcaaaatcga	aaggaacttg	acgttcgcga	tagtcgagag	cagctctgaa	aagtgcgaca	60
ggacggaatc	aggaagatgg	agacgataga	tacctgcagc	cgcgaaatgtg	caagggaatga	120
cgaagggat	tccaaggcga	ctcctcctgt	ccactgctcg	gatcttcttc	ggtatggact	180
accgagcaac	tatccgaccg	gcataaagaa	cgatgccgat	atggctatat	tcttgtgccg	240
aagagccttt	ttcctgaaaa	gaccggaata	ccacgaagtg	cctaagcgac	agataggctcg	300
ccatcgcgca	attccgttcc	ttcggggaag	gcaggtacaa	aaacctttct	ttcctgccct	360
gcgagcatgc	actcagacag	agcagaaaaag	aagggagaga	atgcacdggg	taacgaatgc	420
attaagacgc	aaaactgtaa	accgaaggga	tgcttatttc	ccgatcgctt	catcgacaag	480
ccatttggtg	cgatattcac	cacatgaacc	gtggttgat	catcttcgaa	atccagatag	540
tgacccaagc	ttccttctcc	acaatactat	ccttgataaa	ggtaaactgt	agtttggttt	600
ggcctctccg	cccaaagcac	catacagatc	gacaagctat	tggtgcgttc	cgtgcaatac	660
ttcttagcct	cttcataatt	ctgtttgccg	tggtctccga	gaagtctctt	acagcatctt	720
tcgggcccga	cgatgacagc	cggccatcaa	ggcagcgcca	aacaatgccc	ctccgatttt	780
ccattgtatt	tattagaatt	tttacttttt	aagtatcagt	tgcttagcaa	agaagcgaat	840
atccctatct	cctcattcgt	gcaggtgaca	ataatcgctc	gaaaaggccg	aaaggagaga	900
caaggccagt	aaaatgtgga	gccggaatca	gagaaacatg	gttccaaaaa	atctgaaaaa	960
tcgaaccaaa	acaaaaactt	tacgttcggg	aatttttttc	ttttggcgcg	agttccaaaa	1020
aattcccagc	catgttttta	gggatgtgtt	ttgattgttt	ttcggcgcat	gaaaagaaaa	1080
atggtcagct	tcccccttcc	tcttcgctct	ttttcatttc	cccccaagtac	aacagggggc	1140
gcagagtgtt	cggatcggac	ggattcgatc	gggaacaaat	ccggccgatt	ctgtttaacc	1200
atatgagacg	aaaacctgtc	gaatgtgccg	atatgcaatc	atgaatgtac	cctttgaaca	1260
gaatcatcaa	cttaaaacag	tcaattatga	agacaaaaag	actttttcta	ctggcgatca	1320
ttgactatgc	agcattcatg	catcaatggg	gcttgacctc	caaaaacgag	taaagggaat	1380
gagcaattcg	cctctgaaga	gcgtttggca	gagcctttca	cgcctttcgg	catcaggcag	1440
catgtatatt	cgatcgaat	actccccata	aggcaccctt	ccgaatagaa	grrcagtcga	1500
acatcatacc	actaatcaaa	caacggtaaa	gaaagggtgc	ctgaacatcg	aattcgaaaa	1560
aaaacgttca	tatcgccata	tgctgcagtg	cgagttatcg	tcagtgtgcc	ggaaataaat	1620
cagtcacact	gggcggtagt	ggcaatttga	ttttcggttc	cggtttaacc	agcccaccct	1680
gaaagtaacc	attaacggta	gcggcagtat	aaactcatcg	atacaaaagc	ggaaccaactg	1740
gacatcgtag	tcaatggtag	cggtagcttc	gcggcagcat	ttttgctcat	aaggatatac	1800
gcatgaacct	gaaggatccg	gcaatatcac	tctttccata	gacgaaacca	agacgattca	1860
agtaatatga	aagggaagtgg	aggtattaag	ctgacaggaa	aagcttcgaa	ccgatactga	1920
gaagttcggg	aagcgggatg	ttcgactgcc	aaagcctgac	actgaccatg	ccgacataaa	1980
aatgagcggg	agcggaggcg	gccgcctcat	gtaacgaaga	aatcagcgt	caatctatca	2040
ggatccgccg	gtttcaccgc	catggaaagg	ctaaaatagg	ttcttataaa	ataggagcgt	2100

cttcttcttc	agtatgcaac	cgtaagcggg	tccacatctt	aagccaataa	atacttcctt	2160
tttcgtaaac	gaagaaaaga	cagaagaacc	gagaagagtc	gagttcagct	tttgcttccc	2220
gactcttctt	ttttagctct	caatgcgatt	gaacgaggag	tgatttcctt	ctttcgaacg	2280
taatgttttt	gcgcccatte	gagtagagag	ttcgagaaaa	aacggtttga	gatgtaacat	2340
ttcgggggct	tgccgtctta	ctgatagaac	gactaacaag	aaaccaatca	atcatgtgga	2400
caaaagactc	cttttcctcg	tgctcgcggc	agcaagtatc	agttttgcat	tgcccaaata	2460
atctcatgga	aacgcacaa	gggtaacggg	aaagttcagc	agaagagcgg	cgtataggtc	2520
aat						2523

(2) INFORMATION FOR SEQ ID NO:770

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 513 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...513

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:770

gttacgtaga	cttgggatta	aaatgtgcct	gcccctgcag	atggatcgat	cgaatatctg	60
gcacgaggcc	ctcatgagaa	ttatgtggat	cgtaggcaag	tgctttcttc	ggactgtatt	120
ccgaccgtgt	gagccgtatg	gtcgaaccta	tgtacgcccc	cagagtacgg	gcaatagaac	180
cggccttaga	gctctgccct	gacggatgat	tccggcaggg	gtatcagggt	ggaagcttcg	240
ggacagtcga	tttctccatt	cttccctatg	aggacgaaca	tcttgccggg	actctcatca	300
atgggaatta	cccattgcctg	cgcacatcat	cttgccgttc	gacatatgca	gcgcggactg	360
ggcaatggaa	gttgccgggc	cggtactgct	ccacatacct	ttgcccctca	tcgggcactt	420
attccttcga	acttcgtttt	ctcctctctg	aatgtgtccg	cagctacttc	gaatgcgaag	480
agaacgggac	ttaattctct	ttcgggtgaag	ccc			513

(2) INFORMATION FOR SEQ ID NO:771

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 808 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...808

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:771

agacaggatg	cattcatgcc	tgagatctct	tgagcagtcg	gattcgtgac	gctgcccacg	60
agagcaaaat	cgtagaaaat	gctctaaaaa	caatactttc	atcatgatag	ccattatttg	120
attcgtaatt	tttccgtatc	tataatttct	gatcaacatt	tagcgttacc	aggtagaaac	180
cgggatcaaa	gttggagtat	tgaactgtat	gctgtaataa	ccttcggata	gatgtttggg	240
caaccggtta	tatcagccga	ggctccattt	attccatata	tttttattac	agaaaggaag	300
ggttatcggg	atagtagatt	attgttacaa	cagctttcgc	cggttgggcg	aaatagagat	360
tatcttggat	ttatcaaggc	ttgatttggt	gcttctaata	gaggcaggag	agtacctgtt	420
gattcgggaa	gagttgacaa	caataatttt	ttacattttg	atggctttcg	agcgatttcc	480
tttgttcaca	gaaagtatgt	tcaaatctat	accagtccct	ctgagtgagt	ctaactgcaa	540
ttccaataaa	tgtcaccaag	gtcaatgact	gcaaaaacac	tgtcctgaag	gagatttcac	600
tattcaagcg	attttcgtac	caatcgatgg	cagactgtag	ttttcacaca	caatatcgca	660
tcgcgcagac	aggaaatcag	ctgtcgggaa	caagttctgg	gaagagatga	tggttggatt	720
ggatctgaaa	taatcttcaa	gccttcgtaa	tcgntgcctg	acattttctc	tatcctgaac	780
aattcttcaa	agcagctatt	gcaaaaagt				808

(2) INFORMATION FOR SEQ ID NO:772

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 643 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...643

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:772

ggacttacga	gaagtttctg	tccgagggtc	ggcatgggga	aatggactac	tggagcgcaa	60
cagggagctt	cgctattcgc	cggcagagct	gttgccggta	ctcgtacggn	tatctccgtg	120
gcactgaact	attaccccaa	gatcaaaaac	cggcctcggc	tccacaaata	gcttactatg	180
cttatggaaa	agactacaca	aggtcgtcaa	acgcctcttg	gacaagctac	tggattatat	240
tcgtcggagg	tctgccccct	cgtctcggga	cggctctttc	gcgactctgc	tcctttgccg	300
aacgctattg	ggcttgccgt	gcaggtatcg	gctgggtagg	gcgagcggca	tgctcatttt	360
gccccgaggg	ggaactttct	ttttcttggg	aggctatttg	tggatatcga	tctgcctccc	420
gatgctccga	tgccatcgcg	cgtggagctt	gccggaactg	tatcgagagt	tgtcccacgg	480
gagctatttc	gaagaaggca	tggactctcg	tctctgtgtg	agctatctga	cgatagagct	540
gagggggaga	tccctccgga	actggtcggg	aaagctgggc	aaccgtttta	cggatgcgac	600
aagttgccag	cttctgctgn	ccttgaacc	gatatgccat	nca		643

(2) INFORMATION FOR SEQ ID NO:773

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 495 base pairs
(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...495
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:773

aaaagagact	aaaaattttc	aaacgcaatc	gccctgacca	tctgtccgaa	tgggatccat	60
ggtattatat	cgtcttcctc	ctcattggta	ttgttggcgc	tactgtgtac	cgacgcggta	120
gccggatgga	ttattggagc	cggaggagta	tcggctcgta	tggacgcaat	gtgaatcaga	180
cgccacagcg	tggcaccaaa	gtgcatacac	gggtagcgaa	gcgatgggtg	gaggagcaca	240
agtgcgttgc	cggtcattgtc	gttgaatgtc	tcaaaggggc	actcattaaa	gggggtaa	300
ttccactagt	ggaaaaagaa	gtttccactg	gtggaaagt	tatttccacg	ggaggaaaga	360
tatctttcca	ctggtggaaa	accggcgtgt	acaaatagtc	gcctgacaca	caataagaag	420
aataaacaaa	agcgctgtct	tttgtgcaaa	gggccatta	attcgaactt	gttaataacc	480
gaacgtagca	tcggt					495

(2) INFORMATION FOR SEQ ID NO:774

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 457 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...457
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:774

cgctctatga	tcccgaagaa	ttttacaatc	agacgatgat	ccatagtcgc	ggatggaaga	60
gctgttcggt	gtaaaacccc	gagtgtctgc	caatacaggt	tgatcttctc	cgacaacatt	120
gccacccaag	tggcagaaat	gggttttaag	ggatgctcac	ggaaggagcc	aaacacatac	180
tcggatggaa	gagtccaact	atctgtacaa	agccggatcc	gctccggagt	tgtccctctt	240
gctcccaatc	cgaggctgag	cgatgccatc	agtgccatgt	tcacccgcta	cgatggaacg	300
aatatccctt	gacggcagac	aagatgatcc	gttggatcga	agaactcccg	aagaggagca	360
gatattcaat	ctcttcattga	actacgaagt	ctgggatcgc	tccatccgag	gagtcgggta	420
ttttcgattt	ctttcgtgca	ccccctcttt	ggcgaaa			457

(2) INFORMATION FOR SEQ ID NO:775

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1393 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1393

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:775

cgttttctat	accgggggata	atggcacaca	agccacgacg	tttggcctcc	gtacctcctc	60
cggattagtc	gcctgcatca	ggctctcggg	atgcgagaca	cttggggagcg	aatagcttcc	120
agcttacctg	tggcatagtc	cgtggccgct	tcagagaagc	atcgtctcgc	tcaccttgcg	180
gcagatatgc	taccatacac	acgcatcgac	aagccccctc	cgcctcttcg	gagcatcgac	240
cagtgatatt	ctcttttcgt	aaaatcaaat	tccggacaga	agtgcattgg	cgtgccacat	300
gcgaatccag	cacaattacg	gagcgggtga	ccgctttggc	ttggcaaaga	gagaagcctc	360
ggcgacaaaa	tgctcgaaca	attgctgctg	acgggtgtcac	cggcataggc	catttgctcc	420
ggatgccatt	gtaccgacag	gtaggtttct	ccggataggc	ttccatagcc	tcgataacgc	480
catcggaaga	agggctgtca	cgcggaaagg	tttcggcact	ctgctgactg	cctgatgatc	540
aggctattga	caccagcag	ctcgccatcg	cttaggccaa	gtattcgtcc	aagacggaat	600
cgccctgtaa	acggacttgg	tgtgccgcaa	acgatattgg	attttcggat	taagccctac	660
cggattttcc	gactgggcat	atatatctga	tacattcctc	cgccgaaagc	tgctcgcaagg	720
agttgatgcc	cccggaaata	ccgaggatcg	gcacattgcg	gcgagtggct	tctgccacca	780
atagagtctg	ccccgatctc	gctcgggatt	gacttcgccc	agtgtgggaa	tgggtcttct	840
cccaaataag	acgggagtaa	atcgtcccca	ccgaaagaa	tcgcccacgc	atgaacgtgg	900
cataatgacg	tatgacctct	atatccgtag	taaagggata	agtaagggtg	aacctcccg	960
acgtattaca	gactcgggat	ggctctggca	atacacgagc	ccgagggtat	ataattcgct	1020
gtcaaaccat	aacagggtcg	gagggagact	ctcctccctc	aaaagcttgc	ggcgcacctc	1080
aagctcttca	tagagctgtc	ggagcgccgc	aggataatac	tgatagtctt	aggactaagc	1140
atctattctt	gcataagtag	cattttcttc	tataaatccc	tgcgcggaac	tacctcgtct	1200
cccatgagca	tggagaatat	ggcattgcct	cagcagcatt	ctcgatcgtc	accttacgaa	1260
gcgtcctttt	ctccgatcca	tcgtcgtctt	ccaaagctgc	tcctcggtca	tcttaccga	1320
gccttgtacg	cttgatcatg	cacacgggtt	tcattaccat	cggcataacg	gtgacaaaac	1380
cttgacgctt	ggt					1393

(2) INFORMATION FOR SEQ ID NO:776

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 443 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...443

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:776

```
gctctttttg gcaccgggcta cggctctgata gaatttggat ttctgagccg agcttccggtt    60
gcggggcttct tttttttcga gcgaaagaag taatcgcttg tgcttcagcc ttgaaaacgg    120
gcaggatgca ggcgacagcc atgcacgagt aaagattctt ttgttcagtc ttgattatag    180
ggtttgattt atgattattt ttcttctgtc gtagcaccac agaggcaagc cggctcggct    240
cccgttatgc caagagatcg gccggtgcta tccgaagctg taagcctcgc acaccgcgt    300
gacatatata taagggaata ccatgcaagt atgatggata tagatggata agcctttttc    360
atcccgatgg gcgaacagcc ggacaggata taccctgtga gcggaagaag ctgctctgn    420
ctgatcattt tccacgcttt ttt                                     443
```

(2) INFORMATION FOR SEQ ID NO:777

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 970 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...970

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:777

```
agaaaggctg gcgtctgctg ctatcttcca aaagccatac gctccttaag aagaggactt    60
cttcacaaaa gatgagcgca tcgggatacg caaagatttg aaggagcaac gaacgatgat    120
gctttcttct gtcagagata ctatcgctca aaaatttcaa agaggtagag ggcgaaaaga    180
ccaagggtgtg caagcaccac ccgtacgaga gcacgacttc tgctttgcgg tgcttttgga    240
gaccccaggg atataaaaca cgaagagttg aataagagaa tcgtctacct cggtgagaac    300
gacaaccttt tcttatggat cttatggagg taagtgaaga gacttcaaac tcaacattga    360
gagttctact cttacgagcg atgagaagca ctcaccgtgg tacttctatc cgatgctatg    420
attgaaccta agctccttga ggggtaaaat ttgcaagcac ggagggtgaaa gactttgcct    480
gtttgctcac catgtaggaa cacgcagggt ctacaacaag aagaagaaaa gagaggaacg    540
aacatcgaag aagttgaaac ggctctaagt caccaacatg aactataccc agagggtccg    600
tgttttactt cgatactaaa gagcaagcaa atcaatttgt gaggacctcg agaagggtccc    660
caacttccat accatcggct acaatctgct atcatcatcg aaccaacaaa aacaaaaaaa    720
taacaacaat cagaaatgaa aacagcagct tatatgatcc attgccttac caatatgcat    780
gtggtaaggg agatgccacc tacgaagtgg tggacaaatg tgtacagcga gattaaccac    840
agggatgccc tgcactctact cctccagcct caaggagctt tggacagttc ttttcgaaac    900
aaggcttttg cgagcttaac tattgttttt ggaagatcag agcagggtta gaaaaaatatg    960
gcatgagaag                                     970
```

(2) INFORMATION FOR SEQ ID NO:778

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 946 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...946

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:778

ggacgattgg	aatacaatat	ttatagaagt	gcctatcagc	acatttgctc	ggccaagacg	60
gtcaatgacc	tcttgcgacc	tgagcaccaa	ccctgtcaag	ctaaaataat	caaccataa	120
taaacaattc	cccaaaaatc	ttttaaaaac	aatgacaaac	gatatcttgc	agcgtcttgc	180
gtctttgctc	aaagtctgag	tcattgagcat	atcgatgctt	atatcatccc	gagttcggat	240
gcccactaag	cgaatacaca	ccggaacact	ggaaaggctc	ccgttggatt	tccgtttcac	300
cggatcggcc	ggcacagtag	tggtcacagc	aaataaggcc	ggatatggac	ggacggacgc	360
tacttcctcc	aagcaggcca	acagctcgaa	ggacttctat	cgacctctac	aaagaaggca	420
tccccggaac	tccctccatc	gacagtttct	tgccgccgag	ctgaaagccg	ggcaaacagt	480
gggtatagat	gacgttgctt	tccggcagggt	gctgcctctg	caaccgaatc	ggctttggaa	540
tatacggcat	caaactaagg	actgacaagg	atcttttcga	tgaagcatgc	gagatcgtcc	600
agaaatccct	cgtggagagc	ttttcggtca	gcccgtgagt	atgcaggaga	aagcgtgaaa	660
gacaagatcg	cacgtgtcaa	taaagactgg	cgacacaagg	tgccaatgcc	actattatca	720
ccatgttgga	cgaatggctt	ggatattcaa	tcttcgtggt	agagatgtgg	agtgcacccc	780
cgtagagttg	cttttggtta	tgtatcggtc	cgagaatctg	tcctctttgc	tttcctgaga	840
agattactaa	ggaggttcgc	tcagctatgg	aagaaggcgg	ggcaagaata	tgccctacga	900
agccatatat	gaatatatcc	cagcactacc	tccgaataaa	gctgct		946

(2) INFORMATION FOR SEQ ID NO:779

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:779

cggctcgcag	atgcttagcg	ccaaggcggg	aaagagccgc	agcggaaacct	tatacagcag	60
ggaatagaaa	tgagcattat	tggccgggatt	gtccatcagg	caaaatccag	ctcatgcccc	120
gtacggatca	tccaacggga	atcggagctt	tgagagggaa	cgtcttctct	cccaacaaat	180
tcagtgtcca	tcctcctaac	gaaggggtga	caaataagggt	tcgcgcgtta	tgcttccgcc	240
accacgacca	tataggcaga	atgaatgcgg	taggcggact	gctccgtggg	caacctctac	300
tcgaagaatc	agttgcaaac	gctgtattgc	taccgtggga	agatcctgcc	cccatgccaa	360
caatccgggtg	agtagcagaa	gcggcaaaac	aatgcgtatc	gtctattcgt	tttcatcgtc	420
gtcgaattgc	aatcgctgga	tccaagagt	tcgtctctta	tatcttcac	ggaagcaatg	480
gcttcgggtg	aacctcggcg	aagctctcgt	ccggatcggg	tggtt		525

(2) INFORMATION FOR SEQ ID NO:780

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 527 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:780

gcttcgctct	gcagccacat	aagatcctat	gggcgtattg	tcctgcaatc	gcccgaagtc	60
cccaccctta	cgagtgtgag	tttgcgtagc	cgatccttac	ctggcgggta	tcgaagtcta	120
tattggccag	agcatccagt	tcgttcagac	tatatctata	ttatcagagc	cgatgccgtg	180
gctctgcacc	gtgatatgct	gtcgccatac	caccccggtg	cggtatgaaa	ctccctattg	240
gatacttgca	ttcaatacgc	tcgaaacgag	aggcgactgc	atccactcga	gcagatcacc	300
taccaatatg	accttatcgg	ccaattgttc	gggacgaata	tgcatgaaa	gaccgaaccg	360
tccgtattga	tgatcagctc	ggagggggga	atgttctttt	ggttttcata	agttcattaa	420
tgttttaaga	ggtgagacag	acaatcggtg	agatgggctt	ctcgaaaagg	tcggccttgg	480
gtctaaaagc	tttgcacggn	ttggaactcc	tgnttctgac	ttccttt		527

(2) INFORMATION FOR SEQ ID NO:781

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1580 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1580

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:781

cttgccgcta	aactcttcgt	ggcgagagag	atcgaagtca	gtccgactag	gatgccttcc	60
acttctttga	agccgaacgg	catctcgaac	tcaatatcgt	ggcagcattg	gcatagtgtg	120
ccagcttgtc	atgatcatgg	aaacggtttt	gtcgtctccg	aagccgaggg	cgcggtgccca	180
ctgcatacgg	aggttttcca	cttctcgaac	cattgcagct	cttcacccgg	tcgtacgaag	240
aactgatctc	catttggtcg	aattcgcgca	tccggaagat	gaactgacgg	gctagatctc	300
gttccggaaa	gccttgccga	tctggcaaat	tccgaaaggg	atctcattcg	tcccgtcttc	360
tgcacattca	ggaaattgac	aaatatgcct	tggccgtttc	gggacgaaga	tataccttca	420
tggcaccgtc	ggccgtagag	ccatctccgt	ggcaaaccatc	aggttgaact	ggcgcacctc	480
tgtccagtta	gcgtaccgct	gacggacag	acgatctcgc	agtcgaggat	aatctgacga	540
tttctccag	attggtgtca	ttcagtgcag	tagcaaagcg	ttcgtgtact	gatctcgctt	600
ctgttgatat	tcgatcacac	gggctgttgt	ggctcggatt	gagcctcgtc	tgaatgcctc	660
gccgaagcgt	ttggctgctt	tggcgattct	tttgctatatt	tttcatctat	tttggccaga	720
tgatcctcca	cgagtcatcc	gcacgataac	gctttttgga	atccttggtg	tctatgagcg	780
gatcttgaac	gcatccacgt	gtcccgaagc	tttccagatc	gaaggatgca	tgagatggca	840
gagtcgatgc	ccaccacatt	atcatgcagc	agggtcatac	ttcccaccag	tagcgtttga	900
tattgttctt	cagttcagaa	ccgtattgtg	ctagtcgtac	acagctgccca	gaccgtcgtc	960
tatctcggac	gaaggaaaaga	gaagccgtat	tctttgcagt	gtgagactat	ttttttgaag	1020
agatcttccg	ttgtgccatg	ctatcttgat	gtgtgaatct	tattgtattc	ctacattttac	1080
ctcgcgaaaa	taatcctttt	tcttcaatag	tctcctaaac	gatttgagta	cacatcccac	1140
aaacaaatgc	aacactaaga	taaatttagc	aagaagactc	gaaaggagtt	ctaaaagttta	1200
gttttttctg	ggtctatggg	tcagttgggt	gtattgttgt	tcgacctgac	gaaaaaggcc	1260
ttcctatccg	aaaatcatca	cactatcatt	ttctccttga	attcggtttt	cataaagggg	1320
atttctggaa	tgattccaaa	ttcctcctcg	tcgttgaaaa	cttttggcac	ataaaacatt	1380
gatgcatgcg	gacttgattt	gccacaaaaa	agagcaccga	acagaagtcc	cggtgcacct	1440
taataatcaa	tatggaaaac	tccacttact	tttgccaagc	agcatatcga	ggttgcgctg	1500
cgcatttgca	tctccttctc	aacggcctta	cggagaaggg	tttcggcacg	agcaaaatct	1560
cccgtacggc	ataagcagct					1580

(2) INFORMATION FOR SEQ ID NO:782

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 538 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:782

cccgcacatg	agacagctgc	tcgtccagat	actccactgc	cttctccatt	tagccgttgc	60
tttggctatc	agttctttta	tttccatata	tctatatggg	ttgttttgtc	ttgctattcc	120

tttcaagcac	tcgtatttga	aacataatac	cgattttctc	tcctctcaac	accttgagga	180
ggtttcccg	cgtatcatat	cgaagacgac	gatgggtagg	ttgttctcca	tacacatggc	240
cgtggagtc	gatccattac	tttcagacct	cgggcataaa	tctcatcgta	tgtgtccggg	300
cgaacttcgt	agccgagggg	tccttctccg	gatctgccgt	gtaataccat	ccacgcgcgt	360
ccccttgagc	atggcatcgg	ctttctaata	tcattgccgc	gaaagccgat	gaagcccggg	420
atcccgtagg	tgaagaaaaa	ggattggcct	gtaccgcgaa	ggagaaaaat	gggtcaacat	480
aacccttgg	cgagccaatt	ctatgggcat	gccatttggg	tggagaaact	ccccttaa	538

(2) INFORMATION FOR SEQ ID NO:783

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2029 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2029

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:783

cggtaccgc	caagtattcg	tggaagtcga	tgttgaaaat	acggcccttt	tgatgtttgg	60
aataactaact	cgcggcggtg	aaggacagtg	tatgggtgga	gtttgactgg	ggtggctgcc	120
tccaaaagcg	taacggaggc	ttctaaagta	ccctcaggcc	gattggtaac	cggtcgcaga	180
gtgtaatggc	acaagggtg	tgactgggag	acaaacaagt	cgcacaggta	ggaaactaga	240
gcatatgatc	cggtgggttc	gcatgggaagg	gccatcgctc	aaaggattaa	aggactaccg	300
gggataacag	gttgatcact	cccaagagct	catatcgacg	gagggtttgg	cacctcgatg	360
tcggctcgtc	acatcctggg	gctggagaag	gtccaagggt	tgggctgttc	gcccattaaa	420
gtggcacgcg	agctgggttc	aaacgtcgtg	agacagttcg	gtctctatct	gttgtgggcg	480
caggaaaattt	cgagggtctg	acactagtag	gagaggaccg	tgttgacag	accctgggt	540
accggttgta	ccgcccagg	caccgccggg	tatccacgtc	tggtaaggta	agtgtgaaa	600
gcatctaagc	acgaagccgg	cctcaagata	agatttcata	aatagggtgg	ttaaagacta	660
tgaccttgat	aggctgcagg	tgtatgttgg	taacaattaa	gccgagcagt	actaatagcc	720
cgaacttttt	gtgcaccgga	aggatgcggt	atagggttgg	ttgttgccgc	aaagcttgag	780
gaatatttgt	tggcctttcg	atatgtcgat	tgccttttcg	aagtattcag	gtgttataac	840
gttggggatc	cacctcttcc	cattccgaac	agagaagtta	agccaacggt	gccgatggta	900
ctgcgtcaca	gtgggagagt	aggacgccgc	cttttttaag	aagcgtgaga	gagagggggg	960
gataggatct	ccacctcct	cccggaaaaa	aagggtgaagg	agagagtctc	gaatccgagg	1020
ctctctcctt	tttattttct	ctctctccaa	aatcattttt	gcttttctct	ctattccttt	1080
tctccttttc	cttccttcc	ttcctccccc	ttgctgcgcg	ttattctata	acgtgagttc	1140
gatataagtt	tatgcgacta	aatcttaaat	caactcgtga	agaagcccaa	gttcaaagca	1200
atccgaatga	agttttttag	taaccattta	catccaaaaa	cacgtaggca	agaaaactct	1260
gaagtgtggc	ctgggtctgaa	gcatagaatt	gcatttttag	cactatgggg	aagagctaaa	1320
taatcaaagg	tccgtgaaaa	agtctaata	caaactctgt	aaaagcaaat	ggcgattaat	1380
agtttcaatc	aaggcacagt	gggtaatggc	caaaaagtga	ctttgttttt	aagaatcaag	1440
gataagccca	tgatagtctg	tattgccgaa	agcccagtg	ggggcgtag	atcgctgctg	1500
tactcgggtg	caccaaagct	ataaaggcta	tatggagggc	aacggttatc	agggtgacatg	1560
gactttcgac	atctctgtgc	cctcaaagaa	cctcacgact	atgcacccga	atggaaggat	1620
ggagtatcag	ttctctaccg	atgataccac	tgcgatttgg	catcaactca	tcgatagcga	1680
tagtattcgg	gagcaattcg	gcaccatcga	aaggctgtcc	atgaagcgga	tatggctcgtg	1740
aactgcgggtg	atgccggaca	ggaggagagc	tgatccagcg	ttgggtattg	cagaaaacgg	1800

gctgcacatg	tccgtgcggc	gactttggat	atcttctctt	actgaggagt	ctatccgtga	1860
agctttgcga	ggctgcgcga	cagcgaagaa	tttcattccc	tatatgaggc	cgactggctc	1920
gtgccatagg	cgactggcta	ttgggtatga	acgctacgcg	ctttataaccg	cttccgcttc	1980
gggggcaacc	cgacaggtac	ttttccatcg	accgtgtcca	gactccgac		2029

(2) INFORMATION FOR SEQ ID NO:784

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2702 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2702

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:784

tttgcgtcgg	tttcgtttgg	tttcggccag	ttggcggatg	gcctgttcgt	atgacctccc	60
gattttttctg	ccagctgaag	cacttccatt	ttttccggct	cttccgttgt	atagcagaga	120
tacttcttttc	ggccgaagac	ttcgggtgca	tagacagccg	attgcgtgcc	gcccagcccc	180
atccagacct	ctttgtgagt	ctggacggat	cgttatccat	attgatggac	aggatctgcg	240
acttccctta	tccgtcagcc	cgaggagggt	ctgtatctgg	tcgaatttgt	tggctacttg	300
cgctgggtcga	gaagaatctt	gcaatccgaa	ttgttgatga	tgcctccttt	accaccggcg	360
aagagatgat	gtcgtccacc	tcctgcgtca	cccgattgcc	tccccgaaat	acttgcgcac	420
cgttttgtac	atatacttca	gtagtcggcc	atattggccg	aggcgatcgc	tttccaggct	480
tcctcgacga	cagttgtttg	cgaacgcctt	tgagtcgcct	catcttattg	atgaaagccc	540
catgatgatg	atggttacca	cggggaaaag	ttcccgggtt	tccttgatgc	atcgatttcg	600
aagacgataa	accgcttcga	caggaggctc	atgttttgtc	cgaattgagc	aggaagtcca	660
aacgaccgcc	ccggtagtac	tggcggggcg	agtcagaaa	ttgtcgatat	tgaaatcttc	720
ccggctgact	ttgattcgcg	gtttttccag	tccggccggg	aggatcgcgc	catgaattcg	780
taaacgtatt	gaagctcggc	gttatccctc	tgtccgaacc	gatcaggcgg	ataaggccga	840
gacagcgctg	ccgagctcgc	ccgattcggg	tttcgatatt	tttccctctt	gctttttccg	900
agcgtcaaaa	gcagcgtttt	gatactgtct	tcttttcgac	gtcgaacacc	ccgtcatcgg	960
tataaaaagg	attgaacgaa	tcggctcctc	ttccgtatag	gtaaaataga	tgcggctctt	1020
acctttcggt	tccggtggat	gagcgaacaa	agtccctggg	aggagttagc	cgtatcgaca	1080
gcaacacatg	cgttccctgt	tcgtaatact	gccgtacgag	atggttctga	aaaacgattt	1140
tcccgaaccg	gacgggtccc	ggacaaaatt	gttgcggttc	tgataatccc	gcgtttcatc	1200
ggcaagtccg	aaatatcgag	atggacgggt	tgcctcgtag	gcggtcggac	agtttgatgc	1260
cgaaggggtga	aagcagctgc	ggtagttcgt	ctcggccgta	aagaagcaga	gagccggctc	1320
gataaggtgt	agaatgtttc	ttcggaggga	aaatcgcccc	cattgccggg	cagccccccc	1380
aatagagcgt	agccgtgtcc	gtcgtattgt	gacggggacg	gactccatca	aggccagcgc	1440
cgagcctaca	tcgtttttga	tctgccggag	tcttcccggg	cgtcgctcca	tgccagcaca	1500
ttgaaatgcg	cacggatgga	gcgagtcctt	gggagtgccg	aacgttcagg	tattcctcga	1560
tccactcgga	ttgatctgat	tggagcgaga	gaagcgtgca	agtgaagaca	tggttcggcc	1620
tgtttctcga	agcgcttgag	attttcttcg	ctgtcgtcga	ttaaaggtac	tggttataga	1680
tatggttacg	cgggagcatc	agcccagcgg	gagcgcaaa	ctcagccggc	agtcgctgcg	1740
atcggttgag	agccgttcgt	aacgccgtcc	gttgcgacgg	cagcaggcag	atcgctcccg	1800
atcggaaca	gtagcaggca	gaggatttga	tccccgatcc	gcacttcac	ggcgccgagc	1860
cgaggtcttc	gagcgtgcct	gccgcacgt	cgcgtaacga	gaggtaacgg	tgagcaagcc	1920
acgcttgctg	tccgtgcctg	cgatctcatc	cgccgaaaga	gcttgaggcg	catatagccc	1980

gaatcgttga	tgatccgttc	gaactgatca	cggcctccag	aaatttcagg	acggcatccc	2040
gctccccggac	ttccttcgca	gaaggggtcc	gcgacagagc	gtcgagaaat	cgcttcgttg	2100
cgccatggct	gtttcgctgt	tttcgtcaga	cagaggtaga	cggaatgggtg	caggaaggac	2160
gttcgttgaa	atgccgttcg	taagagcggg	cagaggaacga	gagatgtcct	tttccaactc	2220
cggacggtag	cttttccgaa	taaaccagtc	ctgctgtgca	ggatgctgta	aacgggcaag	2280
accttcaccg	ccttgtgcc	ggcgcatgca	tcgccgcgta	ttcgggtgag	gtcacggtaa	2340
agagttcggg	cattcaagag	agaaagccac	ggtgatgtcg	gcattcttcg	atacgatgca	2400
gcgttctcga	tggccagcag	cgggaacttc	tcttccagtt	cgcatttctt	cggatatttc	2460
tcattggcgtc	ggttcgtttg	tcgttacagc	ccggacggaa	gaatacggcg	gacaggacgg	2520
cagagagaca	ggtaacgggg	atgccggcag	cggctccccg	tttcatcagc	ccgtgttctc	2580
cgtacttgcg	gttcatccga	acgtttgcca	caccacgagg	gtggcaccgc	atacgcccat	2640
gcccagcaga	gatactgggt	catgccgcac	atgtagcaga	tgacgacaag	gatcacgtcg	2700
cg						2702

(2) INFORMATION FOR SEQ ID NO:785

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1603 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1603

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:785

acatttttgc	ctgcaaagcc	cagttttttcc	tgagcactca	gccagaagga	tagtaaccgg	60
cggagcggag	tagcgggtatc	agcataggat	cgctacacat	tttctctctg	cacggctttc	120
tccaatagac	atcatcgctg	caatcgacct	tgagtattag	gcttggcact	gaccacatcg	180
tcgaattgta	cagcagaccg	gatgcaagca	gactatccaa	tcggggggta	ttctccagag	240
gataacatag	ctatgcata	aatcaggctg	ggctgactca	cccagaacga	gcacaccgtg	300
tgtggcgctt	tagggggagac	tttggttaacc	atatctctct	ttgactggag	ttaatgcgat	360
cgaaaagggc	attgatctct	ttgccttcca	tcagctttgc	gagatgtctc	ataccaacct	420
ctcacaaggt	gcagctgtcg	gtaggagaaa	gcatagcctc	tatcttcgga	gagctgatca	480
agagctttgg	atagtgccaa	actgctgcat	agagtattgg	gctaagaaac	agaagcagtg	540
aggaaagaga	aatttaggtc	tgcttgggag	tagatgtagt	agccgaccag	ggttagactc	600
acaagccaaa	cgatcgcata	ccaacctgcg	acatgacaat	atcgctccaa	gagaaagcct	660
ctcgccagaa	tgacttgcc	tcggctatgt	agtagcaaga	aatgcagtag	ctatataggg	720
gataaaaaa	gtccctagca	cctgagcagg	tacatctcga	ctacgtacat	aagcgttgcg	780
atcagatcac	gggccacata	atgcctcgat	ataaccgacg	gctcgggatg	gctcaagtaa	840
taaataaacg	accaagctcc	aaacaatcgg	ggcaatcaga	attccgcaa	tcgaacctcc	900
atattccaag	agaccaatac	tcggcgatag	gttcattgac	aataagctgt	aaaaaggcca	960
ggaaaaacag	cagatagctg	ggctcagcag	gcgggtggaca	taggtgttag	aggcattctg	1020
ccgaagactc	aatccgagtt	gcgtaatttt	gaaaaaagggt	cgatcatagt	atTTTTTTTta	1080
ttgctaata	ctttgattta	taagtaacat	tcgtagacga	ggaggctatt	ggattgagat	1140
tgtataccgt	ttagaggatc	atagtagaag	tatgtatgtc	caaagggtgc	ggaatgtgtt	1200
ctttgaagat	gttcaactga	aacgcacaaa	gatatgtaaa	aatattgctg	catagatgaa	1260
attaaccaat	agactcaggg	gacaaccgcc	tcaaaatgct	cccgtttaag	tttgattgta	1320
gtgtgtgttt	ttgatatgcg	aggggaatag	tcttttgaga	gagagcaaat	actgttgatt	1380
cgttcgatct	catggaaatg	tcgttctctg	catcactcat	tctgttcagt	cttcgtgact	1440

atacagtgtgta ggaagtttgg taaggtttgc cgagaggagg tgtgtcgggtt ttcagcggag	1500
gacttcggga atggcccggg caatggcgca gagtaaagcc tgacgtgtgg ttcctttctg	1560
gccgatgaca acgatgtgcg tcgggcccga agaatacgtc cgc	1603

(2) INFORMATION FOR SEQ ID NO:786

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 762 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...762

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:786

aaatatgaag ttagcatcgc caactttctc ggaagtaagc catagcactc ctgtagatga	60
agtcaaatcc tcgattatct atccactggg aaaaatcttc cggaagcact gctggagtta	120
ttcataaaat tctacaagaa ggtatcttac gaagcctaatt tctcccatgc tcaacgagga	180
atatttatatt cgggcttggc tttcttgatg aagtcgcca aaggtgtcctt tgcagaacga	240
atacgctgaa agagcgatac gagctgatgc tgcgcaatcg aatcggcaca aaggcgagga	300
ctttatctac gaacagacca atggcagttt acatcgcttc agcgagatt tacgctcaac	360
accatactcg tcttttatga gccgggatgc caacatgttc cgagctgatt cgccaactgc	420
atcaggatga ttggctgcgt atttggtaga atccaaacaa ctaagtattt tattcatata	480
tccggataat ataaaaatgc atgggtggcc ggtttgtccg attttccgga tttcgtggag	540
taggaatcaa tagcgatagc agtatcacag atcgacaact gtatgataca aagcctcacc	600
aacgatctat ctgcttgata atcacggata tgtaatttaa aagatgtaca aataggagtt	660
ataaaagagt atctgaaaga gaaaaagaat actctctgct tacgaagtat ttatgcatta	720
cagggaaaaa ataccgagaa tcttctttgc agctctgcag at	762

(2) INFORMATION FOR SEQ ID NO:787

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 402 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...402

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:787

cggcacaccg	aaagcgcaa	gccgggtcgt	ccgcgcaaaa	acgccgaggg	gaagctcccg	60
aaagcgaaga	cgtcgcagcc	gctcctgccg	agccgaacac	gaggaagctc	aggccaaacg	120
caagcgtggc	cgccctcgca	aagcggcgaa	gagatagcgg	aagagacccg	ggaagatgtg	180
cagcagctcg	tggctcggct	gctgcagagg	agacaaatgc	aacggagaag	gagagtgccg	240
ggcggagccg	gcggcgaaaa	cgtccaccgc	atccccctgcc	aaagccccctg	ccaagccctt	300
ccccgtccgg	cggagaccac	cccgcgcgtg	gcaccgtctc	cccttccacg	acgcccgtga	360
gcgagccggc	caaggacgat	gccaaagccc	agcgcgccgt	cc		402

(2) INFORMATION FOR SEQ ID NO:788

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 639 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...639

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:788

gggccttaat	agtccggcac	caataccgag	aagtgaagata	tgcaaggagg	aagaaattag	60
agatatgctt	gactcctgtc	aagtgatccg	agggttcca	tatcctttgg	catactgtga	120
gaggaaaagt	aaaagcgcac	ttccgtacaa	tgtttgccga	tctcatagcc	ggccttcgtg	180
aagagttcga	tcttggtaca	cttttggtcc	acttggtggc	tgttgtgtag	gtcagaccga	240
agtcttacgc	aaaccgttgt	cccaactcca	tttatctttc	aggtagttgg	catcatgttc	300
aaatagaggt	tacctgccac	cgtgttttct	ccaccggcag	cccgttggtc	agagaagtct	360
gagaggcatt	tagtccggtc	acacctttta	tatccagtcc	tttttgggag	tgtcagatgc	420
agtgtttgct	tcttggtcgt	tgcaagggtg	aacagcaagc	cacccattgc	cagaaaaaca	480
atcagtcctg	tcatctggta	ttttcttctt	tttttaaagt	gaaaacaaga	aagccgcaca	540
gaatcatcga	tgcttgacac	gcttgaaaaa	aggtgggccc	aataggatcg	aacctatgac	600
cctctgcttg	taggcagatg	ctctaaacca	gctgagcat			639

(2) INFORMATION FOR SEQ ID NO:789

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 831 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...831

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:789

```
ccccctgcat catacgagtc aagaaaaact ttttacacaa cacctgatga tatgcccacc      60
ggggaaaccc acaagtctcc cccttcttcc tcgcatcggg actgtccgat gccgaagtct      120
tacatagccg agctaccacac ggctcgacga actgactccc cgcgagcgcg aatcgctctg      180
gagcaagttt ttcgagagtt caaagatccc atcatcatca tcctgctcgt ggccatgggtg      240
ctttctttgc cgtggcttgc tatcactact tcacggggcg agagggcngt ctcctctttc      300
tggagccgac aggggtgctg ctcgctgtcg tattggccac ggggtagcct ttttcttcga      360
gatgaaatcc gagaaagagt tcgagatcct gatcagggtca atgaagacat attatataag      420
gtatatcgca acggcatgat cgcagggtgc tcaaaaaaga aatcgtcgta ggcgacctgg      480
tcgttctgga acgggagagc aaattccggc cgacggccga ctcatcgaag ccattctcgca      540
cagatcgacg aatccagcct gacggggcga cccgttgtaa acaaaaccct gaccggcagg      600
acttcgacgc ggaagccacc taccctctcg attacattgc cgaggcacca ccattctgga      660
cggccactgc actttcaggg tggaaagggt ggcgacgcca cggaatacgg acgggtattc      720
gagggtgccc gaccaacaac agcgtacaga cggccctgaa cagacagctc gaccatctgg      780
ccggctgata acgaacgtca gctatagcat agcagccttg gtactcatcg g      831
```

(2) INFORMATION FOR SEQ ID NO:790

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 531 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...531

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:790

```
ggccgatacg gtgggttatca ttgatggtac tattctcggc aaaccgcaaa cagagaagag      60
gccgctcgga tgctacgtac gttaagcggg cgtacgcaca ggtggtgacc ggtgtgtgca      120
ttagccaccg gtgggagaca agggcttctc gtgttcaggt ctggtaacct ttgcgcatct      180
gagtgatgag gagatcatta ttatctcgaa cgctatcgcc cctatgacaa agccggttcg      240
tacggataca ggaatggata ggctacatcg ccattcagcg agtggagggt tcgtctacaa      300
tgtcatggga ctaccggttc atttgctcta taatgaactg aaaacttttg cgaatcaaat      360
taaagtctct atatttgacac cccgaagtgt aggagagata actaacaaaa caatataaga      420
gcaatgaaaa gaacatatca acctctaacc gtaagagact gaacaagcat ggctttcggt      480
ctcgtatggc acggcaaatg gccgtcgtgt attggccgtc gccgtgcaaa g      531
```

(2) INFORMATION FOR SEQ ID NO:791

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 570 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...570
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:791

atccccgaca	ttttttgcag	ataggacttt	gaaagtaagg	cctctttcta	atgaaaaacc	60
tacctttaca	gacgaaacgt	ttcggggaaa	atatgatgaa	aagagagaat	gaaaagaatc	120
aatatcacca	tcggcctttct	ctttataact	tcgtagtgat	gtccgtattg	ggatacccgc	180
gcgaaaggat	agctccgacg	gtgccgaccg	gctgggtgacg	tatctgttgg	tttgcgcttt	240
ggagcggtcg	tactcatcct	attacggtgg	gtattgatcc	ggcggtacaa	gatggcgagc	300
gtcgccggca	cgatatggaa	cagtatgccc	gatacgatga	aaacccgacg	aatagtcacc	360
taacgctaca	gtgaagtatg	acgaacacgg	caagctctat	ccttacatat	tcaatcccat	420
tcttcgaccg	gtcgtgtggg	gggccgcagg	atacgccctt	tcaaggggaat	ggagcccgcg	480
ccgacgaaaa	atcggagaaa	gctgggagaa	tttcgcatgt	gagcgaccat	taattcgggtg	540
ttggcaaacg	ggccttcttt	gccggttaaga				570

(2) INFORMATION FOR SEQ ID NO:792

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 780 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...780
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:792

cagaagaata	aagggttaagg	gtaggtcaaa	aaagggtatta	tagaatagac	tccaaacggtt	60
ttgcacaaaa	ccgacggagt	tcgttcgttt	gtaattgtca	actccccctt	caagctttcc	120
tgaaaaatga	gttctatccc	cttttctcaa	tgcgatggct	aattttgtaga	gtgggtgcta	180
ttggttcaac	atgtctatag	actgatgaat	aatgaagggg	tatgatgggg	ctttttaatc	240
atgaaatctg	caagtttctt	gctataaaga	taagaaaact	tgcagattta	tcaagggtttt	300
cgcaaactaa	tcagggcaac	cgcatacaat	ctttagtagc	ttttgagata	gtctatatcc	360

agagcagctt	tgaacaacct	cttccgtaag	gaagtttgtc	tttatgccc	gatacaatgg	420
ctaaagcaaa	ctttctcaac	ggtttagatt	ggtggctgaa	taatccttac	gagctcgaca	480
agtatcctcc	taaagggttac	atccaaatgc	caatggagtc	gattctcaat	tccccaatgc	540
ctcgaatata	ttgtccgatt	aactgacaat	cctcgggtgg	taaactgcga	tataatactg	600
cctatctatg	cgagtctctc	cctctaaact	actaatccac	gctccacttg	aattaaactt	660
ctcaagcctt	gccattgact	atattcccct	cctcaaagac	ctctgaagct	agtaatgtgg	720
tataaagtcc	tcttccaata	cgaccatgat	ctttctccaa	ggttcataac	gatgacacct	780

(2) INFORMATION FOR SEQ ID NO:793

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1069 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:793

tccgggcagta	ttttcagagt	gatttgttgc	ttagtgaagg	aagatattcg	aagggccgat	60
acgacgagga	aaatatgaag	agtacggtag	tgccctttgt	aacggcatca	tgctggcggt	120
agctgcgggg	ttagccgaga	gcagggggtt	aggcggattt	atatcgccaa	tcacttcggc	180
gaccatgcca	tatacccgat	tgctcgtcct	catttattcg	tccgatgacc	gaagctgttc	240
ggtgcgtacc	acgaacggcg	tgctcataga	agcaccttat	actgatatta	ctaaacagat	300
attgcacgga	taggagcttc	attgggtata	gactatgccg	agattggagt	tgctacaagg	360
gggggggtgt	tcattgtggc	gtttgtggta	ccgtgtagag	cgcaggagg	ctttgcacga	420
tgccggcatt	ccggatgcca	cgagtacgaa	ggttgagtat	acttcattcg	gcacgaagtt	480
atcaggcgcg	tgaagaaaat	agggctgcta	tccgatacgc	atggctatat	cgacgaaaat	540
accggataca	tttcgccgat	tgccgatgaga	tttggcatgc	cggtgacacg	gctctgtaac	600
ggtagcggac	tatttgtcgg	gtttggctcc	gctgcgtctg	tctatggcaa	tatagacggg	660
caagacattc	gtctgcagta	tcccaggttc	tgcgcttttg	tgtggaagag	gtgaaagtgt	720
ttatgacgca	tatcggggat	accccggtcg	gtacgaacct	cgtatatatc	gaatgctcgt	780
gcagaccac	ctcgtctttt	tgtctgtggg	catagtcata	ttctcaaagc	tattaccgat	840
aagaagttgg	atatgctgca	tctgaatccc	ggagctgcag	gtagtatggn	tttcatgctg	900
ttcgtactct	gatgcgcttc	gtgaatcgat	ggccgagata	tacnggattt	acaggtgata	960
gaattggccc	gatcgataga	tattaaagat	gaaacatttc	attcttcaaa	gcttgcatth	1020
tcttctccc	ctggtangcg	gatggatatc	ctcttcgtgg	tcgtgggtgg		1069

(2) INFORMATION FOR SEQ ID NO:794

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 604 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:794

atagggaat	gtttggcccg	acgtatatca	gcaggtgggc	aatctgctcg	agtcgtacgc	60
caatcgaacg	acagagccat	ccctcaagcc	atcggccgtg	cctcacctac	ttcggcgaat	120
actggggcaa	tcggctcttg	gctgcagcgg	tgctctgcac	gagctgcggt	acagtggagt	180
gtataggact	tgggaaaaga	ggagagggct	gaagactgac	cctcaagtac	tgccctatgg	240
catattaaca	atagaatcat	ggtagccagt	atagataaag	aagccgttgc	cggctggagg	300
cagagatatt	ccccggcacg	atccacctga	tcgacaaacc	ccagccatcc	ccgaagccat	360
aaggctgcta	tcggccagtc	gcacgatcgg	ctcgacacgg	agaccgcgcc	ttctttcgtc	420
cgtggcgccc	gtccgtccgt	actctgatgc	agatgtccac	agaaacggac	tgcttcctct	480
tccgactcaa	atgatagata	taccggagga	actgcaacag	ctactggaga	atcccggcaa	540
ctcaaggtag	gactgagcct	gagcgatgac	atgacgggtga	tcagacgggc	aaaccgatcg	600
aacc						604

(2) INFORMATION FOR SEQ ID NO:795

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1162 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1162

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:795

cgagacttcc	attccccccg	atttatatgg	ataagaagaa	cgccattggt	attccgatga	60
tacagtctac	attcaaagcc	nggacaaaat	actccgagga	cgtcttttca	ctgcaactca	120
agatatgggt	gagtacacca	tattcaacat	tccggcgact	tactatgtga	gtgaagagga	180
ggacaaatcc	gccgacccat	accgattcgt	caaggggcatc	ggacagcaaa	gcctgccgct	240
tctccttcat	gccgagacca	tcggtttctc	caaccaccaa	agagcaaaaa	tgaatacctg	300
tacatactga	ttacactttt	actctccggc	tttttttccg	gtgtgagatt	gctttccttt	360
cttcggacaa	actgcgctct	gagttggaca	ggatagaggc	gatctcacag	gcagagcggt	420
aaacttgctg	tatcgacatc	cgaccaactg	gtgactactc	tccttgtggg	taataatatc	480
gttttggtag	ctatggctctg	ctgatggcgg	gattgctggc	cgcacctttg	gcgcaatggt	540
tgataacgat	gctatgatcg	tcgttctcca	atctgtctta	tcactatat	catactgttt	600
accggggaat	ttctacccaa	agccattttc	aagaccatgc	caatatgatg	atgagggtat	660
tcgccctccc	tatcgtagcg	atctatatct	gctttatcct	ctgtctaaac	tcttcaccgg	720

tttatctcgc	tctttattcg	tctgggtggac	agaattatg	tgcctacaac	agtaggggtg	780
gggccgtaga	tctcgatcat	tatttggcag	aaaatatgtc	cggagaaaac	gaaagaacga	840
cttgactacc	gaagtgaaaa	tcatccagaa	tgcgctggat	tttccggtat	tcaggtgcga	900
gactgcatga	tcccacgcaa	tgagatgata	gatgtgagtt	gcaaacggat	attgaagtac	960
tcaaaacgac	ttttatcgat	ccggtttgtc	caagatcatt	atctacagac	agancataga	1020
tgacgtagtg	gatatatcca	ttcgagcgaa	atgtttcgtg	ggcaagactg	gcaaaaacta	1080
tcaatactac	tgtattcgta	cccggaaaagc	atgtatgcc	ataaactatg	cgactactca	1140
tgcagcgcaa	gaaaagcatt	gc				1162

(2) INFORMATION FOR SEQ ID NO:796

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4479 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4479

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:796

cagcagatcg	gactgaagac	caatctgctt	tattggggta	cgacgactcc	aatgcaggat	60
tggagtttctg	catgggaaaag	aagtggacac	tcgatgttcg	ggaggttaca	accctttttac	120
attcagccac	catcgcaaac	tcaagcatgg	ctcgtggctc	cggagcttcg	ctattggacg	180
tgcgaaagctt	tctccgccac	ttcttcgggc	ttcacggcat	cggagggtgag	tacaatgtaa	240
atgattcgac	atccccatcg	gccggctcaa	aaagctcaac	aactaccgat	acgaggatac	300
gccatcggtg	caggtctgac	ctatggctat	cagtggctgc	tggcaaaaaga	tggaaacttgg	360
aggcatcgat	cagcggagga	ttcgtccact	tcattatgac	aaattcgaat	gtgccaagtg	420
cggcaaaaag	atcgcggaag	gaagaacgac	tacttcgggtg	tgacgaaaagc	cacactttcg	480
ctcatataca	cattaagtaa	taccttattt	atacagacaa	gctatatgaa	acagagtcgt	540
atatcatcct	gtcgtttctc	ttcgggaatgt	ctacgcttgc	cgtgacagcc	agacccatct	600
cggggggcatt	aaggtgagcg	agaagcacgt	ggtcaagaaa	cgggacatac	cgccaacgta	660
aagatggacc	ttgatcttga	cggccaaccg	gatatgaaca	gcaatctgct	gatgggtggtt	720
acccccatta	ttcgtccaat	acatcgaaag	atcaagtcgc	tctccgcccc	ttcctcctga	780
tgggaacaga	cgttatcgca	tcatcgaccg	tcgtatcgct	ctcgataagc	acccatctac	840
aatcagcccc	acaccaagcc	ttctgcgatg	gtaaagcgtc	gcacggcaag	gaacagagca	900
tggactattc	tgccgtact	ccatataggc	ctggatgcgc	cactcatcaa	tgattctatt	960
ggctgagaac	tcgggctgtg	cgactgcccc	ctcggatcag	aagaaaccac	acttacggac	1020
gacgctttgt	gccactgtat	gaagcggact	atcaatacga	gatcattgta	cccaggggga	1080
gctgctgaaa	aaacgcgaag	agactctctc	cgctcactta	gcctatcggt	agggaaatat	1140
gtggctcttg	ctcagttcga	cggcaatccg	gccgagtggc	acgtatcgac	agcaaaactga	1200
aagaaatcgg	aaacgatagc	gatataattt	cgaaaagctc	tccatggtag	gctatgcttc	1260
gccggaaggt	ggcgagaata	caacgcgaag	ctctccaagg	ataggggcgca	ttcatttgca	1320
agcatctcgt	taacaagtac	cccataccta	aaagtcgatt	cgaatacgat	tgaaggggca	1380
ggattgggca	ggtctgcgtg	cggctgtaac	caagagcggg	cctcgcaaaa	ggatgccata	1440
ctggagatca	tcgacaaaa	gccggtcggt	agcgtacagc	cgcactgcga	gctatcgatg	1500
ctgggtctct	ctatgccact	tgtctcggga	ctattacccc	ccgcttcgcc	gaagcgagct	1560
tacattccta	tcgtggtcaa	aggatttgag	ttggacaaa	cacgtgaaat	tatcaagcac	1620
acccctctcg	tctgagtcgt	gcagagggtt	acgccgtagc	gcagagtatc	cggaaaggag	1680
ccacgaacgc	tacgaaacgt	ggacgatagc	agagaaactt	tccgaaaagc	gatagagccg	1740

acagccaatg	cggctataat	agacttcgtg	cgggcaggta	tccgcaggct	ctggctcgac	1800
tcgaagcacg	caaagcgaac	ccaaactatg	gatgctgttg	ggcttggcat	atgcctacag	1860
cgaaaatggg	ctgaagccga	gagctatctt	actcgcgctg	cgcagcaagg	cggcccggag	1920
cacaacacaa	tctgaacgaa	ctgcgacgct	atatgcaaga	aatctctaaa	tggaaaaaga	1980
ttcttagaaa	acaatattca	cttttaaaaa	aaaacgagat	gaaaaaaaca	aagtttttct	2040
tgttgggact	tgctgctctg	ctatgacagc	ttgtaacaaa	gacaacgagg	cagaacccgt	2100
tgtagaacta	acgctactgt	tagtttcata	attaagagcg	gtgagagccg	cgctgtggcg	2160
atgaccttac	agatgctaag	atcacaaagc	tcaccgccat	ggtcttgacg	gtcaagttca	2220
agaaggtatt	aagacagtgg	aagaggacgg	cggatcctta	aagtagaagg	aattccgtgt	2280
aaatctggag	ccaaccgtgt	cctgtcgttg	tagccaatca	caattatgag	cttaccggta	2340
aaagtttgaa	tgggttgagg	ccttgacgac	ttcttgacag	ctgaaaacca	aaatgccaaa	2400
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cgcgtgcatg	ccggtatctc	attcgcagag	tagaggtaaa	tatggctaca	cagtatcaaa	2580
actactattc	ttttaaacag	ctgacgctaa	aatcgcagcc	cttgtcgcaa	agaaagattc	2640
taagatttctg	gcaattcttt	ggtctcaaac	actaatgcat	atgtgtatgg	agtccaacgc	2700
ctgccggctc	ttacactccg	gatgctgcag	gagaaacata	cgaatggagg	cgtctttgaa	2760
tacgaattat	gctgtagggtg	ccggcttcta	tgtctggaaa	gtaaataatga	tgcaagcaac	2820
gagcttcgtc	cgacgatcct	tttatctatg	gaaagctgct	cgataaggac	ggcaaccctc	2880
tcacgggaag	accttgacgg	atgctataaa	tgccggattc	tgcgacggag	atggcacgac	2940
tactatccgg	tattggtgaa	ctatgatggc	aatggctaca	tctattcagt	gctattacc	3000
aaggacaaaa	caaaatcggt	cgcaacaacc	actacaagtt	tcgctgaaca	tcaccggccc	3060
cggtagaat	actcctgaaa	atcctcaccg	gtacaagcca	acctgaatgt	tacttgccaa	3120
gttacacctt	gggttggtgt	aatcaggctg	ctacttggtg	atcgaccctg	caaacgacta	3180
aaaaatttca	tagtttgtct	atatacggaat	acagggagcg	gggttcgctc	cactcctgta	3240
ttcattctct	ccaaatcaaa	taggggaaatc	ccaatcacca	atcaagaatt	attgttatga	3300
acgacgctaa	gaaatatatc	gtatcgggtc	tgtcttactc	gtggccggaa	tgtttggcgg	3360
atgtatcaaa	gaggactatt	cgattgtccc	cgtccgtttc	gcctgaccgt	cagggttg	3420
gatgccgata	gcaagatatt	accgaaaccg	gagccgtgca	gcgcgtcgtt	attttcgttt	3480
cgacgaaacc	ggccgccgca	tcgaccgact	gatgatggac	gccgcacagt	ggctgcacgc	3540
aaaccgatac	cattggaata	cgacgggccc	actacgggtc	tttcgtggca	tgggccaacc	3600
ccgacgatca	catgttgga	gaaacaccaa	tgtgcaaaac	gtcaaagact	tattcttcag	3660
gctttcctct	accgaggat	agcccaatcg	cccggagacc	ttttttccgg	tgtactgacc	3720
tgccaataga	gtacggctct	atcgaaacagg	gtacagacca	aactgtcgat	atcaccccg	3780
tacggcacag	gtacatatca	tcatacgcg	ctatcaagag	tgctggaagc	taatggcccc	3840
agacaactgc	cagactatgc	cgacatcctt	tgggagaaac	tcccgaact	tataccggcc	3900
tggccgagct	catcggaat	ccgtccaata	ccgtcccga	ggacagatac	aaaacgggga	3960
tttcatttcc	ccatcttcag	agtttatccc	acacttgata	ctactcctct	gcattctaac	4020
tctatgcata	cggacaagaa	ttgttgaaata	tcagcacagg	ttcggatgag	taccattcat	4080
accgtgcata	ggcaaaatgc	tcaatatcta	catagactgc	gtggagcaaa	cctcaatgta	4140
ctcgtatccg	tcaccccttg	ggacgagtgc	aacaatatgc	agaatactaa	tcgcacagct	4200
attatgaaaa	tgaatatctt	catcatcctt	cgggactact	tccacgcctt	ctcctgttat	4260
tgctttaacg	atggggcggt	agcatgtacc	aaggaaagata	atcccgatca	gccacctcgg	4320
acgaagtggc	aacagtaaag	atgtcgcttg	acgatgtcga	atgcgaggcg	gagacctcta	4380
cagtggagaa	aatctgatca	agaaagtgcg	atattcgtct	ttcgtgaagg	gctaaacggc	4440
ctttgggttc	tcgacaagca	aaactatttg	cttcggggc			4479

(2) INFORMATION FOR SEQ ID NO:797

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1772 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:797

caagtacatt	tttcatcccc	aaatggctna	cttcagcagc	aatgtgatct	caactacagc	60
cgcgatgncgg	tgcgtcggaa	cgaatggatc	atcgggatga	gtncacagag	gacttcgatc	120
gggtgaaaac	gctgctgctg	cgtctgacga	tgaggaaaccg	cgtattatca	aagaccccct	180
ccccaccgtg	gtcttgagga	attggccgac	agctctgtga	gggtgatggc	acgtgctggt	240
tgcgcacgga	cgacctgtgg	aatgtttact	gggatataaa	cgaacgaatc	tatacgaatt	300
caatcgtcag	ggtatagcat	tcccgttccc	gcagcttacg	ataacggatc	cgccgccggg	360
caggagcgaa	gaggggaaaag	tacggaagct	catcgccgga	gaacgtctcc	accaatacct	420
ccctgtaaga	gttgaagatc	tggatttggg	cacgaatccg	agataacatc	cctgctcgtc	480
tatgacgggc	ggttccaagc	cttgggtgtcg	tcgaagattc	gcatgatggt	ctccatggaa	540
tcgtattgac	tattttggcc	ggaggagaaa	ccatgaagcg	gctgacctga	atctctcata	600
cagctccggc	cggaacatga	tattgcggat	attgtccgca	ataccagccc	catcagcagg	660
ttgttctcgt	ccaggacggg	gaagacttgc	gatggctgat	accgaacacg	tgtacgacat	720
ctcccagagt	catatgggtc	tcaccgggtc	gaaatccttt	tctatcaccg	catccaacgt	780
catagcgtca	gcacggcctt	gtctttctga	tgcgtcagca	gctttccttt	ctggccaaac	840
ggagcgaata	gatgctgtgc	ggcatgaaaa	ggcggatagt	gggtacgaac	tcgtactcac	900
gagcatgagc	ggaaggaaaa	gattgtatcc	gcggtcagct	cggcgatcag	gaaaatacct	960
gtcagcggcg	cgtgcatgac	gcggccatca	ctccggccat	gccgaggaga	gcaaagtttt	1020
tctgtggcaa	tagacctcga	tgaagggaaa	gaagttcagc	gcataggcaa	agatgaatcg	1080
ctcagtgtccc	ccatgaacag	actgggcgcg	aaaagtccgc	cgcagccccg	cccgaattgg	1140
tggctacgga	agcgaacacc	ttcgtgatga	tgataatccg	aggaaaacga	acagcaccca	1200
ataggaattg	gaatacggct	cgaacggctg	ccatccatca	aagagctgta	ctggccgccg	1260
agcagggcgt	tgatgtatcg	tagccctcac	cgtatagcgg	agggaaaagg	aagatcagac	1320
cgcgaggata	aaggccgata	tgaggtagcg	ttggcgatag	tgtggaaagt	tctgagtttg	1380
ctctcgaaga	cgaacatgac	cttgagagaag	tagaaagata	cagtcccgag	aatacaccca	1440
gtagcagagc	ataggggatg	cgatccatcg	aaaaggatcg	ttgagcgtaa	agctgaacat	1500
ggctccctgc	cccgtgatat	ataggatacg	gcggcggcac	tgaccgagct	gatcagcagc	1560
ggcagcacga	cgacatggtc	agatccagca	ggaggacttc	gatgacnaat	accaaccctg	1620
gatcggagcc	ttgaagatcc	ccgaaatggc	acctgcggcc	ccacaccnac	gaggagcatc	1680
ancgtcttct	gctccatgcg	gananccngc	ncnagttgga	gccgatggca	ncccccgtna	1740
gtacgatagg	gggattcggg	tccgccgatc	cg			1772

(2) INFORMATION FOR SEQ ID NO:798

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 595 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:798

cgcgtaagca	atthttctgga	agagggtgact	gcgatgccgt	tcgggcataa	gctatcttca	60
cgcatggggg	aactattctt	tgtgtctcagg	tttatgcggc	ttatatgagc	ttgagacttg	120
cttcgagcac	caaacaccct	atgggggatc	gttatgctgg	tcgtttctga	taaaaataa	180
tgaggcgga	tatactgcgg	cccaattatt	ggtaccttta	cctccgataa	aagcatcaac	240
atgaaccatc	catcggcata	ttcgactccg	gttatggagg	acttaccatc	ttgatgagat	300
ccgcaaactc	atgccggagt	acaactttgt	ttacttgggc	gatatgcccg	ctctccctat	360
ggcaaccgct	cttatgaagt	agtttacaaa	ttacgctaca	ggctgtgaga	aagctctttg	420
aactcggttg	tccgctagtc	atctcgcttg	taatacggca	tcggcaaaag	ccttgcgaa	480
cattcagcaa	gcgatctgcc	caatatggag	gatccaccc	gtcgtgtcct	cggtatcatc	540
gcctacgggt	gaagccgtag	atgagatcac	aagactaagc	acgtaggttt	ttggc	595

(2) INFORMATION FOR SEQ ID NO:799

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1156 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1156

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:799

ggcgattatt	tccttcgcga	caatttgtea	cttggtatct	ccgttgcacc	ctgcgagtgg	60
gatggagaaa	caattggacg	gccaacgtta	agttgtcgtt	tgtcttcttt	agaatctttg	120
tagaggacgt	tttttcgcaa	ttgcagtttt	tcagtacacg	tcgcttttct	caaccgttga	180
gaaaatcttc	gtcttgacga	gggCGacgcc	gtagatggct	gagaggcgat	ctcgcaggat	240
ggcggatcgt	tgccgcgaag	gctgacggta	agcctgcaat	tctcgacaaa	atccgcgagc	300
ggatggaggc	tccggcatct	ttcaccagtc	gcataccttc	tccagcaaa	gatattcgaa	360
ggcgatagtc	agttcttcat	acaggatctc	ttcttccggt	cggctgtctc	gagggcttcg	420
cgagccgctt	cgcgataaag	acgataagac	cgctcgtgcc	cagcttgaca	cctccgaagt	480
agcgcactac	gcgacgaata	cctgcgtaag	ccccaatgag	gtgatctgcc	cgaggatggt	540
ttgccggcag	tccccgatgg	ctctccgtcg	tcattggatc	gtgtgcgtcg	cctttggctc	600
ccagcttgta	tgcccagcat	acatggcggt	catcgaaatg	cggcgacgca	gatcggccac	660
aagcgacagg	gcctctctct	ccgacttaca	ggataggcga	aagccaggaa	gcggctgcgt	720
ttctccgtgt	actgtcttcc	gagggagcac	tgatcgtgag	gtaggaatct	tcggccatgg	780
ttcaaggaga	gcctcatctg	taccttcctc	ccgggCGgca	aacttttcgg	acagacggag	840
aggagcgtag	tcatttggtt	gatactggcg	agcgtctctt	cgtaacttcc	tttttctgca	900
agcgagggt	cagcagaccg	tatatggcag	taggcaagtc	tctatctctc	ccgtattgct	960
ccctgcactc	ttggctctaa	ctgtacgatg	gcagggagca	cctgatagta	gagtccttga	1020
taaatcatcc	tttgggggtc	gccatcagtc	cgtgagtgtg	tctcttccat	ttgcatgagg	1080
ctatgcggac	gatattgata	tgcccctgct	cgcgaacgcc	cttcggtaag	catcatcttc	1140
accagcttcg	gcatac					1156

(2) INFORMATION FOR SEQ ID NO:800

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1076 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1076

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:800

attctcttct	tctctctttc	gaatggccag	ggaaagtcag	ncgaaaaagg	aagggacttc	60
cctttaccct	ttattttccg	gctgcgtatc	gnagggcact	cgcgtcctgc	attcagagct	120
tgaggttcat	atccaccact	tcttgctttt	gcggctgaaa	atagcttcga	taccgcctgc	180
cagatagtcg	aaaggatctc	aatgaaggga	gaagcggctc	cgagcatcac	gaagttggat	240
gcacgacatt	gcctacctca	tcacgggcga	tgctgtccgc	atcgatcaga	acgtatgagg	300
aagagattcg	atcttggaga	taactgacgt	agtctcggga	tagtcgggat	gttgatgaac	360
ggaaccgtat	tggtcactac	ataaccgtca	ggttcaaata	aggaagatag	cgcaatgctt	420
ccatcggctc	cacggagagg	aaagatccgc	tcccccgata	gggatcaggt	cagagtaaat	480
gggtgcatcc	acaggcgcag	aaaagactgt	acatcaccac	ctcgtctggc	catgccatgg	540
tttcggcctg	cttcaaatac	aaattgttgg	tcagagcagc	cgaaccgaag	ctgctgcaat	600
ggacaaaatg	ccttggcctc	cgacaccggc	caaaatatat	ctgttttcat	ttctttattt	660
cctcctactt	caatggttat	tccttgcctt	tgcacgtttg	gcagctttgg	cgtcgcgagc	720
atgcttttgg	atgcaacgcg	acggggaatg	atgacggata	caccttcata	gttgatttcc	780
tcccgatgat	tactgcatag	tcgtcatgat	tcttgggtac	cggcaacagc	tcctgatgtg	840
atcgggggatc	gactccgata	ccgcgacaga	tggcctctac	ttgccgtatg	cagacgaatg	900
ctgacctcgg	tcattggagat	ggattcattg	tcgagataat	caccgtaatg	tgctattctc	960
attgatggca	tcgagaagac	cgttattccg	aatgagtgaa	agtagagtcg	ccgattacag	1020
acacagccga	acaagccggc	atnggcagcc	cttnggcacg	gtgatagatg	caccat	1076

(2) INFORMATION FOR SEQ ID NO:801

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1015 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1015

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:801

aactggaaaa	tgaacaaaac	cctccaagag	gggcttgcat	tggcaaaggg	ttggacgcag	60
ctttgaaagg	gcgtacgatc	aactgtgacg	tgattatcga	acccatttca	tccatttggc	120
aagtattgcg	gcagccatcg	ataccaccgt	atcggagttg	cagctgaaaa	ctgtgccgat	180
aaggagtcgg	gtgcattacc	ggagaggtct	ctgctgctat	ggtagccagt	accggtgctc	240
ggtattgatt	ataggacata	gcgaacgccg	tgcttactat	catgaaacat	ccccatcctg	300
atggagaagg	tgaagttggc	tttgtccaat	ggcttgaccc	ccatttctgt	gttggcgaag	360
tcttggaaga	gcgcgaagca	ggcaagcact	tcaggtagtc	gctcgtcagg	tggagaagc	420
cctgtttact	ttggatcaga	cgactttgcc	aaattgatcc	ttgcttacga	gcctgtgtgg	480
gccatcggta	gggtaagacg	gctacggcag	accaagctca	agagatgcat	gcacatattg	540
taagagtata	gccgctaaat	atggaaaaga	ggttgcgaac	ggttgttcat	tctctatgga	600
ggcagttgca	atgcagccaa	tgccaaaaga	ctctttaccg	tgcggatgta	gatggtgggc	660
ttatcggagg	ggcttctctc	tcggtaacaa	attcttgcct	atcatcgaag	cattctgaga	720
ttgcttattg	tttcaaccct	ttcgggcgag	ttttatttca	aaaggagaaa	cgaacgagat	780
gaaacgattt	tcttttttagt	ctcctattgc	tttcgttggg	ttgccattcg	tcacggaagc	840
tcaggtttcc	acatcggctc	atagcaaagc	cccgatcagc	atttcgaagc	tctcagtgcg	900
gagcacgaag	gagaaggcat	catcaccatc	ttcagcctgc	atccgtaaag	ctgccgtggg	960
caagtatccg	gacgttggcc	nttgatcgan	ggcgagagca	tatccgttga	tccaa	1015

(2) INFORMATION FOR SEQ ID NO:802

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 577 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...577

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:802

gatccggctg	actatcggcc	gctattatac	gccttcggga	cgtagcatca	gaaaccttat	60
gcaaaagggg	atttcaaaagc	atacgaacag	gaattgatgg	tcgcttcaaa	cacggcgaaat	120
ccatccacag	cgacagcatc	cgtttcccga	ttctcttcgc	tacaagactc	tcgtcacggg	180
gcgcaccgtt	tatggtgggg	aggcattatg	ccggatcttt	tcattcccaac	ggatacggcc	240
ttgttaacaa	gctgcacgctc	gagctgctga	acaagggtat	ctttaatcgg	gctgactcaa	300
atatgtggat	gcacatcgctc	agaagctgcg	ccaacgcttc	cccacagaca	gtcatagcc	360
acgtttacat	tcccgaagaa	ctgactgaaa	gctgaaagca	tttgccgaag	ctgagaaaat	420
cacatggagc	accgaacttt	ngctcaagcc	gaagagctta	tcaagtgtca	gctccatgcc	480
tatatcgcac	tgatattctg	gggagaacga	cttcttctat	ttcttcaatc	gcatggatag	540
gatataataa	gcactcgatc	tctcatgatc	cgacgaa			577

(2) INFORMATION FOR SEQ ID NO:803

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 850 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...850
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:803

cgaagccg	gtgatgcagg	cacagctgga	aatggaagcc	aagcgtttgc	caaggcgaag	60
tctatcctcg	aaaaatttat	tgccaagagt	actcctcaca	gtattggttg	gcacgagggt	120
tcatcctctt	gtccgatatt	tataagaaga	aggggatacg	tttacggcaa	ggcagttatt	180
ggaaagcttg	gaaaagacta	tcctaatacat	gaggatgaca	ttcacgaaca	gatagcccaa	240
cggctgaata	atcttctgta	cgattcatca	ctctgagttg	gaaataatga	acagatcatg	300
aaatatcaat	tatatacggc	cgtcataatg	gctctctctg	tatatccgtt	tgcggtcaaa	360
ccccacgaaa	tacagaaacc	aaacgccccg	accgctgcgc	agggagctta	ctatcgttaa	420
tgaccagact	gtggagatgg	acatgcggat	ccgcttccgg	ctgcatacaa	ggccatcgaa	480
cctcgattaa	acctttccgt	ccggaatata	acaagcgta	attcggattt	gtccctgaat	540
ttcctcttca	ggcaggaaca	atcttccgaa	tatcctgccg	acggaaggca	tatgaagcac	600
cgggggtacc	tgaatatcgg	tatcgccat	acgctaacca	gcgaatggat	gccggctatc	660
gtctgataga	tgcagagcag	gagagatgaa	tcttttcttc	tcctatcgtg	ggatgaaatt	720
ggctttcaat	accgggactt	cgacggcgac	agaaaggata	gacgaaatga	tggcaggaat	780
ggacacgagc	agcgcaggcc	ttcctttgtg	cttgctaccg	gcttggatta	ttcaaccatt	840
atttcaatac						850

(2) INFORMATION FOR SEQ ID NO:804

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 680 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...680
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:804

aggatcccc	gccatgcggc	gatcttatcc	tcggctccta	tgggcatcac	tttgcattgt	60
tgactgggta	cataaggaac	gcaaggaaat	tattgacagg	ggctgcaaaa	aaggctgtgc	120
tcctcatcac	agatcgcaact	gtcgccctct	tgaagagac	aatcgcccaa	ctggacgaat	180
acttctctca	caagaggaga	ctttcgacat	ccccctgctt	atggcaggaa	cggagtttca	240
gcaaagggtat	ggggcgagct	gctgaatatc	ccctacggca	ccacgatctc	atacccaactc	300
ttgcacgacg	aataggaaac	cccaaagccg	tgagggccgt	agccgtgcc	acggagccaa	360

tcccatatcc	atcctcgtgc	cgtgccatcg	ggaattggaa	gcgacaatac	gctgacaggt	420
tacggtgggg	gattggacaa	aaggaattcc	tgctttcgtc	atgaaatgag	tctgccggtc	480
taaagccttg	aagcctctcg	aaggctatct	atatttgagt	atatttgcaa	gcataaaaaca	540
gttatataaa	aacaaagtag	aatatggatt	tcattcttct	tcaaggccga	ccacaagccg	600
gaggcctgtt	cggaggctca	agccagatga	ttctgggtctc	gtgctcatgg	tagtaatctt	660
ttactttctc	atgatcaggc					680

(2) INFORMATION FOR SEQ ID NO:805

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1089 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1089

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:805

gcaaagtctc	caattcggca	tcattcatag	cctcggcaag	ggcatagcgt	tcttggtact	60
ctcaaaagct	ttccagccgc	tccagtcttg	tttggccttg	ctctggctac	gatctgacgc	120
atcatagaac	gggccgaatt	gcctcccaag	ggctgaagct	gtcaaaatcc	atcgccaata	180
taaagtaggc	atagaaacga	cggaggcaac	cagattactt	tgcagatccg	tctcattata	240
ttcgagggat	cgaactgggt	gtattcgaag	ttcagttcct	gatctcgcca	aatagctgag	300
gagaaaaata	ggaggaattg	taaatagggc	gacgagaagt	aacaagaggt	cggccttgta	360
ttgactttcg	tctttcactt	cggtaagggt	gaggaaaaaag	gtgcagtcga	tacgctctgc	420
aaaactgaat	gtggccgttg	tcattcgagtc	agggtgagga	gatctgagag	ctgacgctcc	480
aatgtcttga	tgctctcgca	ttggcattac	tgccgagacg	ttcgctattg	atagttacct	540
ggcattcaac	tcctgactta	cagcagagcc	gtatagaaaa	acaggcagtc	cacaggcccc	600
accacaatct	cctttctcatc	ccaatccgat	tatatagcca	caatatcttc	ggccacctcg	660
accttgcttt	tgagcggata	gtccgaggtc	ggccttcact	gtcgaatatg	gtgatcttat	720
tcgtacctac	tccaatccgg	ctcccgcatac	ggaaagcgaa	ttcagtacta	tcgcatccaa	780
gtgctggctt	tcattcttgcg	catagcctct	tgctccccac	tgctccgtctc	caaggcaaaac	840
ccaccaaccg	ctgtccttgca	cgtttgagtg	ctccgagcgt	agcgctatat	ccggattagc	900
agtcaagcga	agatcgaagt	cgccttggt	cctcgtttca	tctttttctc	tgctgtctct	960
gccggacgat	agtcagccac	gctcgggaca	agacggttat	gtcggccttt	tcaaaaagggt	1020
tccgacaggt	tcgagcatct	ctacggcact	ttccacatcg	atacggctcta	tcccttcgca	1080
gttgctctgc						1089

(2) INFORMATION FOR SEQ ID NO:806

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 569 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...569

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:806

ggatccccctt	gcataacagt	tgtttgcttc	gtgcctatct	gtgaatggag	cgcgcaacgg	60
aaataaccgga	ctttccatac	agagaggaaa	gggtagaaca	gcaaaaagca	gggtgaaaaa	120
tagtcgtttc	atctttttgt	cttatttttg	tggaatttat	gattgataag	cccttctttt	180
cccttcatcg	taaatgatag	tcgtcccata	aaggggggga	taagggatga	ctaaataatc	240
tttgcatac	ggtctccata	tctttccaaa	ctaaaggcaa	tggaatttta	ttgcctttct	300
tcgattcttt	gctgttttta	gtgttatgat	tatagcttcc	tgcaaggaaa	cacatttttt	360
gcttttcaca	aggctgataa	gtcttgattt	tttgttttag	aaattttatt	cttcttggat	420
tttgctcgtt	ggcattttat	gtactctgtg	ataccacttt	atatcgggtc	gaatctctgc	480
ctgtgtggat	ccagaaaggt	ctgattttct	atataatcgt	cccttaaaaa	acccgaatta	540
gccgatgc	catgggaata	atggatatc				569

(2) INFORMATION FOR SEQ ID NO:807

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 528 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...528

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:807

cggcgatctc	gccggtttgt	gtcaggtcga	gcctgcctgt	ggcaacggta	tacgcgtatt	60
ctccgtaacg	cgcttcataa	agagcaggat	ggccaaaaca	gtcctatctc	tatggcaacg	120
gtcaagtcga	ggatgacggt	aagcaagaag	taaccagcat	gacgaggcta	tcgctgcgag	180
ggccgcgacc	gatattgcc	ccgaacgcca	tccgctcata	ttgtaggata	ctatgatcag	240
tactcggcca	aacaagccat	cgggatgtat	gccgtcagag	gcccggaggaa	cagcggatca	300
gcagtaacac	gaaggcgtgt	atgatccctg	caatgggaga	gcgccgccgt	tgttgatgtt	360
ggatcatcgt	cgcgctatgg	ctccgggtgac	ggaataccac	cgaagaacgg	aaccactata	420
ttggccgcac	cctgagcgat	agctcgggat	tgctgttgtg	ctttttcccc	tatcacacca	480
tcgggctacg	ttggctgaca	agcagagatt	cgatagcttc	caacaggg		528

(2) INFORMATION FOR SEQ ID NO:808

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 653 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...653

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:808

tccgtgtcga	tgcgatccat	tcgaattttg	gccggagtaa	cctctccgat	atcttcttca	60
tggcagccat	atagttgttg	atcttgggtg	cacctccatg	agaataatgc	cggcgccgat	120
atcttcaagg	aggcctgaga	ggcgtagatg	ttgaggtagt	tggctgtgat	ttcgtccatg	180
cgagccttgg	ccaggcattg	acttcggagg	agcggaactc	tctttcggaa	aatttgtcgg	240
caaagtcatg	cggaatgatc	cgttggactt	attgtcgttg	atcatcgaca	cgtgttgagc	300
ttcatgttct	ccgcctcctg	ttctgtcagt	cgcaggctgg	tcaatcgcgt	gtgacgttat	360
aacctcccat	cggaagtacg	cgaagcatgg	ccacagcctg	tttttataga	tagataccga	420
tgtacagccg	gcacctatat	tacgtagcaa	catcccaatg	tcaagctcgt	cgtccgaaga	480
gcaatacctg	gcttcgcaaa	gcggtgtgac	gaggatgcct	gtcaagcgca	atcccagact	540
tcttctatgg	cgatgcggat	attctgcttt	accgaacggc	gagcagtgtc	aattggaagc	600
cgggcttcaa	gcttcatgac	aaaatacttc	cttggccgta	tcttctgtt	tcc	653

(2) INFORMATION FOR SEQ ID NO:809

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 626 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:809

cggatatgggg	caagggtgccc	aaacgtcagg	gtacaggtta	cgcttttcgaa	atactgccgg	60
agcacgaccg	aaacaggacg	tcggctttta	cggacttaga	cggcagagga	aaaagacttc	120
cctacatata	caagtagatc	atcccgcctg	cctcgatcgt	atcgccggat	gttttgaacc	180
aatggagtac	agatccttca	gtccgatcaa	cgatccggga	ggggataact	tccaccacta	240
tagagggcag	attacgatga	ggcacggaa	ggtattctcg	atcggtataa	gcagataacg	300
gagtgggaagg	caactcggcc	gaagccacta	acaacattac	cgggtacaacg	tgtccagccg	360

tttgggtgccg gatgtggaag acatcaatca ggcaatacgc tcaacgagat agagaagtat	420
ttccagtacc cgtgtggagc tcatccctct aaaatggttg tggggcaaaa ctatatgtgc	480
gattctcgca caaagaggta gagttgcgca acggtaaaaa ggaaacgata acctggtata	540
gttcaaagtc cccgtgcggg aattcgagag aaagatagga ggcattacga cttcaagacc	600
attcgattca tgcgtggtct acctga	626

(2) INFORMATION FOR SEQ ID NO:810

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 595 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:810

cgtcccttag caggctgagg cactccggta aaaccggcac cgatcggctt cgatatgcaa	60
gcaaacgtct gaagcctctg ccagccccctt ggcatgtcga gcaaaccgaa acccgtaata	120
tcgggtggcac cccttatccc gtatttcgca tcaactccgc ccctgctcta ttgagcaggc	180
acatctgccc gatggcgcct cataaacttc actgccgata agccccaaac ggtgggcagc	240
catcgtacgc ctattcccag cggtttggtt aggacgaggc attgccctgc acgtcgccgg	300
catttgtagc cagatgctcc ggatgcacta tgcctgtaac ggcagtccgt acttaggtat	360
gggatcgtct atcgtatgcc ctcccatcgt aaggcaccac tctcgtctat cgtctgctgt	420
cctccacgga gaatagtncg caagacctct acgggaatcc cttcggaggg gaacatggtc	480
agattgagta caacagcggg cgcccttcca tggcatacac attcgagaga gcattggcac	540
agctatgcga ccgaagggtat aaggatcgga caaaccgcgg gaagaaatcg gggt	595

(2) INFORMATION FOR SEQ ID NO:811

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1492 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:811

tgaagagattc	aaaagtgact	accgggtcct	tttgccggcc	agtgaagaaa	tctatgtcga	60
agaagaagcg	tttccccctt	ttgcgcggta	ccgatgcgcg	gcatcccga	tgtccgacac	120
ccatattgaa	gaacggcgaa	cgtgaagaaa	ncgaagatgt	agtcgtatac	gataccagtg	180
gccccatac	cgatactcct	atgaggtgaa	tctgcaccga	ggcgtaccga	agatacgcga	240
gcagtgatag	aggatcgggg	cgatacgggtg	cggctcgaag	ggctcagctc	cgaaacggac	300
ggataaggca	gtcggacgct	tcgctcgaaa	agctgcgtta	cgacatgtgt	gcacgcgtcc	360
ccgtgccgcc	aaggacggct	gtgccacgca	gcctactacg	cccgtcaggg	gacgtgtgacg	420
ccggagatgg	agttcgtggc	ctccgcgaaa	atcagttgat	cgatcaggtc	aggacgcgct	480
atcgcgctga	gaggggtgagc	cgctcggagc	tgttattccg	cgcaagatca	cgcccgaatt	540
gtacgcgacg	agattgccgc	cggacgggct	atccttcg	ccaatatcat	catccggaaa	600
gtgagccgat	gatcatcggg	cgcaatttcc	tcgtcaaadc	aatgcgaaca	taggcaattc	660
gccccatcag	agtaccatcg	aggaagggtg	gaaaaggccg	tctgggccat	acgctggggt	720
gccgatacgg	tcgatgtctc	tccacggggg	atcatatcca	tgagacgcgc	gagtggtatca	780
tccgaattcg	cccgtgccca	tcggcactgt	gccccctctac	cagacgctgg	agaggtgcag	840
ggcgatgtga	cgaagctcaa	ctgggagata	ttccgcgata	cgatcatcgag	caggccgagc	900
aggggtgtgga	ctacttcacc	atccacgccg	gctgcgttgg	caccacgtgc	ctctgacctt	960
gcgcccgcctc	acgggggatcg	ctcccgcggg	ggttccatca	tcgccaaactg	gtgcaccacc	1020
cacaagcgca	aagtttcatc	tacgagcatt	tcgaagagat	ctgccaaatc	ctcgcacgta	1080
cgacgtagcc	atatctctcg	gcgatggcct	gcgcccgggc	tgcatcccga	cgccaacgat	1140
gctgcgcaga	tagctgagct	gaagacgctg	ggcgaattac	cgagatcgct	tgggaagtata	1200
acgtgcaaac	cattatcgaa	ggaccggaca	cgtgcccattg	cacaagatcc	gcgagaatat	1260
ggagattcaa	ctcgagcctg	ccatggcgca	cccttctaca	ctctcgcccc	gttggtcagc	1320
gactggcgctc	cggctacgac	catatcacat	cggctatcgg	cgcggcacag	atggatgggt	1380
cggcacagcc	atgctctgct	atgtgacgca	aaaggagcat	tgggtctgcc	caaccgcgaa	1440
gatgtacgtg	aagggtgtagt	aacctataga	tggctgctca	tgccggcggg	ga	1492

(2) INFORMATION FOR SEQ ID NO:812

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:812

ggatcagtac	cgatgaagaa	gagataagtc	gacttgagca	agaagtcttg	cctttttataa	60
agagattgag	gcccgaagcat	cgttgctgac	cgaagaacca	ttcgggcagc	ctccgctttg	120
gaaacttctt	tgtgcgaatc	cttacgcagc	tcaatatgcc	tcatgtccgt	tttgtcgttg	180
atattcgctc	gacagatacg	gccctcacgg	agcagacaag	gtcgtttttt	tgttttcggc	240
gaatagcaga	tggagccgga	gccggtatcg	gagattgcct	caggaggaga	gattctcgcc	300
tgatgttttg	tctgaaagct	ctcattgcag	acaagcgttc	tttccggcca	tcgttttcga	360
tgagatagat	accggcgat	cgggtgaagt	ggtgaccgta	tgggagagat	tatggctcat	420
atgggacaag	gtatgcaagt	gtcnccatca	cgcatctgcc	caaatagcag	cccgagggga	480
acggcactac	ttgtctataa	agatgaaaca	ggcgaacggg	cacgcacctt	cattcgtgat	540

(2) INFORMATION FOR SEQ ID NO:813

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 311 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...311

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:813

gccttaacat tgaacaatct aggtctatta tacagcaata acaatgagca aagcaagcga	60
aagactgcc acaagaggcc ttggtgataa gaagagaatc gtataaaaaa gtcctcaggc	120
ctacaatcaa gacttggcta tgacattaac aatttaggcc ttttactcgg caaaaacaat	180
gaattaaagc aagcgaagat tgctatcaag aggctttggg gaaatacaga gagcttgcaa	240
agaaaatcct caagtctata acccggagtt agcctcagta ttgaacaatc tgggggtctta	300
ctcaacgata a	311

(2) INFORMATION FOR SEQ ID NO:814

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 566 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:814

ggcaaccact gccttcggat agcgttgcag tacttctgcc gtattcttgg aagcggattg	60
ataaagcgg aagtgagcaa agccactttc ttgccggctt gcgcatacgc tccattgtct	120
cataagagg tgccataggta ccgccccacc gatgatcaaa agctcggcat cgtctttatc	180
gccgtgtact tccaacagg aatatcttgg gcaatagctt gaaccttggc ttcacgcgta	240
gcgacatctt ggcggtgattc tccggattgg tgctgatggc atcgggtcaca tagtcttctc	300

caaaccgccc aaacggtgct ggaagccttc ctgtccgggg ataccaata gcgaacgtgg	360
gtctcttcat ttctgaagta aggtctccat ttgcttcgcc cttatactga tccacgtagg	420
gaggacggat atcgggatat gttggggatc ggggattctc catgcagagg agccgttagc	480
gatgaaagca ccgttagcag gataccggtg tcatatgctc aaagctatct tacatgcccg	540
aaagcagaag tcgaagcagt ctgacg	566

(2) INFORMATION FOR SEQ ID NO:815

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 458 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...458
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:815

ggagaagcct ccccgatgg agttcgagac aatgggttact tctactacag atggcgatag	60
cccttatcgg aggagtactt atgacccttt tgatgctgtg gccaaaggtc ccttcgtgac	120
catgttcagt cgcaatagcc ccgaactgtg gacttttact atagtatcgt ccccttgttc	180
gtcttcatgc tcttttgtct gtcttcgaac tctacgccac acaactgatg cgaatagccg	240
tgcccagctg atccgcgagg tagtgctcag gctgatgctg atcgtcgttt atctctctat	300
gcctttcgat gggtaagtc tggaagtttt catcgccata tttttgcagc ctatgccgca	360
tgtatgctct tgctgttggc ttatatccgg cgatcggcaa ggtcaatctt cgtcacaatc	420
ggggctttct gacaccggag cgaagcgcaa ttttctcc	458

(2) INFORMATION FOR SEQ ID NO:816

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1297 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1297
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:816

ggcatccg	ggacgaag	gccaaagt	tggtcaag	tacatgg	atctcgg	60
taatagtt	gagcaaat	tattttgt	caagcgtat	ccgagccgt	taagaagcat	120
gtggacaac	acttcaa	cgctgccaa	gtctgtgt	ccgaattt	tgctgcacgc	180
gaaaaact	ttctctt	aaagaggcc	agctgatcg	gtccaacga	acggatgaga	240
tcttgatcc	atgactt	gcggcaagg	catcaagaa	gagctaaag	agctcgcaag	300
acacagctt	gccgcatt	gcagggggc	agcagtctg	agattctct	gtctatctg	360
atctcttg	ggagtcgc	cagttgg	attattgg	gatctgat	acgccacgg	420
gaagctgt	gaccccg	ccggatcgg	acggacga	aatttttca	ctgacggcc	480
atagctct	ttttcct	tgtgcatcc	cctgataa	ggctctccg	atacattaa	540
ggatgta	acggaggat	agggataa	aattgata	agcttgtga	gagaaaaaa	600
atgcctt	ttgcaaccc	attatgacc	ctttatgt	tacaagcag	cctaacga	660
tggaacg	ataaacta	aacgaatag	aatgtcaa	atttgtcag	ttaccggca	720
aaaggca	gttggaa	cgtttctc	tccaagaga	ggacaaaac	agtattcga	780
gtcacttg	cagaaaga	ttctattgg	tagaacagg	ttgctgggt	gtttgagg	840
atcggctg	gggctgcg	tcatacaaa	aatcggct	gagctgcc	caagcgcgc	900
gccgaga	gcttcttaa	cgcataat	aggagaatt	tgcatggc	aagaaagta	960
aaggcaat	ggtgcagg	tccttga	caccgagc	aaggagagt	gtatgccgg	1020
tatttctc	acatcacc	caagaatag	aaaaatac	ctcagcgt	ggaactcag	1080
agtacaacc	cacctgag	cgtagacc	ttcataagg	aatcaaaa	aaagaggag	1140
tcagaca	atgcaaaa	cggttgca	atttaaaa	gtgatggc	tacctact	1200
aaggtaat	agatgg	gtctcta	cgggtgc	taccttcag	gaagaaatg	1260
tcccgaac	agcttaaa	acttcttta	gtaagg			1297

(2) INFORMATION FOR SEQ ID NO:817

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 532 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...532

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:817

gtccatttgc	attggcctcg	gtaacaaaag	ctccgttggt	gtctttcacg	tattcagacc	60
ccactcctgt	gcttcgctgt	atttggtgct	ggccagggaa	gaccggcttg	gagctgggaag	120
gacttgatg	cgaccttacc	ttccagatga	gaccgaatac	tttggtccg	ctaccgttga	180
tacgcgtgta	gcgtttatgc	catcgtgctg	atcaggctgc	tcctcgttgg	tgaatacatc	240
cagcaacgag	tatagaagcc	ttccacaagg	aagttgggtc	ggacgttacc	gaaagatgat	300
acatatcggc	actcaaa	aatgcatgag	aaatttcagg	cttaggttcg	gatcgttgaa	360
tactttctgt	gcctcaccgg	ctacaacccc	tagtgcaagt	cttcacgaa	tacctgcggt	420
gcgcggaacc	cttttgcata	tttagcgcgc	aagttgatgt	cccggattca	cgtttgaaac	480
gcattgtggt	cgaggactca	gaatcatatc	cttgacttcg	ctatgcttgt	cc	532

(2) INFORMATION FOR SEQ ID NO:818

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2065 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2065

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:818

ggactgactc	atcggttatcc	gggatcgggtg	tattgttccct	tatcacggggc	caaattgttcg	60
atgtactgtc	gtcattgtac	ttcgccgctcg	cttcgcagac	agaaagatgc	ttcttctcct	120
tctgagcgca	tcgatcgatg	cattgacata	tagccaatac	accgacagtc	cgcgatgttt	180
tgctatcggg	aggcgagccc	tccttgtcag	cgacgaacgc	ttggaataca	tattgaagcg	240
tctgccgaaa	tacctcatgt	ggagattggt	cgtataggaa	gccgtacgcc	ggtatccttc	300
ctcagcgtat	aacgcctcaa	ttggtggata	tgctcaaaaa	atacatccgg	tgtggctgaa	360
cactcacttc	aaccacccga	atgaagttac	cgagaagcag	tagaggcttg	tgaaagaatg	420
gccaatgccg	gtattccggt	ggtaaccaa	cggttttatt	gcgtggaatc	aatgattgta	480
cacatgtgat	aagagattgg	tacatttgct	ggtaaagatg	cgtgtgcgtc	cttactataa	540
tatgtatgcg	atctttcgct	tggaataggt	catttccgca	cgccggtact	aaaggaatcg	600
aaattatcga	aaatttgcgc	ggacacacct	cgggctagct	gttcctacct	ttgtggtaga	660
tgctccgggg	ggtgggtggta	agatactgta	atgccgaact	atggtgtatc	tcagtcccca	720
cgacatgtgg	ttcttgcaat	tatgaagggtg	ttatcacaac	ctatacggag	ccggagaatt	780
atcagaggag	tgtgattgtg	aggactgtcg	agccggtaag	cataaagagg	gtgagctgca	840
ctttccggag	gtcagcagtt	ggctatcgag	ccttccgact	tactcgcaaa	aaacgcaagt	900
ttgataagaa	ctgattgaat	gaaaataaagc	tcctccccctt	tgcaaagcca	ttgggggagag	960
agtttgctta	aagagagaaa	agagaaaaaaa	ttgcctttttg	tagaaaaaat	tatgcagagc	1020
cggagcatac	cattttcggg	atggagaaga	acaccggcaa	aacagaaaacg	ctcaactaat	1080
tatcaggcga	ctcgatgcct	atcggcatag	ggttgccctt	acttctaagg	catagatggg	1140
gaaaagagtg	accaggttac	tcagacggcc	aagccgaaat	agtgggtacct	aaagggatga	1200
tatttggttac	ctccgagctg	catttctaca	aaaagaactg	attgcagaga	ttattgatgt	1260
cagcgaagat	cggatgcgct	gggacggctc	atcacggcct	gctcttttga	acccggtaaa	1320
atttgctctc	agggccttcc	acgacaggag	ggttaagaaa	aatgataact	acctatcgaa	1380
ctccggagtg	caaacgacta	ttgtagatgg	agctctttct	ccaagtgtct	ggcatctcct	1440
gtcgttaccg	atgctatgat	tttagctacc	gagctgcttt	gtccatcaat	atacctcagt	1500
tgggtccgtaa	aacggctgcg	tgtatcaatt	gatctcttta	cccacagtgg	aatccgaatt	1560
ggcagagaat	tagatcccat	cgaacaaggc	atatggggga	tagacgaatc	gggtaacttc	1620
acgacttagg	gattcgttcg	gcactgctgt	tgaatgcata	taacagaatg	acctaactcg	1680
cttcggcaac	agaatttatg	tgtccggggc	cgttatgata	acttatttga	acagcttcgc	1740
ctctctgatg	ataaaatctg	tctctcatca	gagattttac	acgtatgttt	gctttgccgg	1800
aagcagtaga	tcgtttctac	agagcaaaca	tgagatcaaa	tctctgtatg	gaggttaagct	1860
atggcccgtg	acaatcaatc	cggtagcacc	cagcgggtac	aaactgaaat	cgaagtgtctg	1920
cgcagagaga	tggaaaaagc	cctcgggtatt	ccgggtctacg	tgtaaagaggg	ttaaacacgc	1980
ttgaatgttg	atgaaactac	cgggaacagt	aaatagcatt	agtggctttt	ccctatgtaa	2040
taaaatgagt	tgggcatca	ttcat				2065

(2) INFORMATION FOR SEQ ID NO:819

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 564 base pairs

(B) TYPE: nucleic acid

- (C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...564
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:819

atccccagcg	catcagccgg	atcgatgttg	ggatcacgta	taatatcttg	agatgccact	60
gggcattatc	gatccaattc	ttcaaaaaca	aataatgccg	atcgtttgag	gccgatatgg	120
attgttgcac	ggtgcgtcta	cgctgtcgtg	acgttatagg	cctgaatagc	ctcgccgaaa	180
atcctattgc	acaactgctg	atagtcataa	ttattattgc	cgcttaattt	gtcaaaatta	240
taatgtatgc	ggacaaagat	atataaaaaa	cggattggcg	aactctgaga	attagtcctc	300
caatcggttt	tgtaaattgc	taaaaagcaa	caataatttt	aatagtcttt	tttgactctc	360
ttttttattg	cttatcagtt	gccttttcgt	gctcttggcg	tgcgggcaat	ttcctgcttc	420
agctttgcct	ttgccttcgc	agatttgtgg	cgtgcttgc	tcttgcactc	gcctttttct	480
gacttgtggc	gtcacttttt	ttgcagtctt	tggatttgtc	cttgctacaa	tctttgcgtg	540
gcacaccttg	ccttatcctt	acag				564

(2) INFORMATION FOR SEQ ID NO:820

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 426 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...426
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:820

tagaggatcc	ccgcttatgg	gacgaatgat	gggtagtata	atcaagggga	tccctccaag	60
atcggtcccg	tggcagatga	gttggccgct	ctcggacggt	cagccagatc	gggttcctta	120
cttattgttt	gcggctcttt	cgcgagtgtg	tataagtaga	gtaggggttg	caaaactgaa	180
ctacctctct	cccgagaaga	atccttcgtc	gatatgctca	gtggaggcat	tacgggacag	240
aacatcgacc	ggtgatggag	gaggtggagc	tggctatccg	tcatattcgt	cagatggaaa	300
cggtcggatg	atttttttcg	atctcctcct	ccgccttacg	gccctcttgc	ccctgctctt	360
cgtgccaaag	gccttaaata	agcaaccctg	tcttccccct	ttatacgggc	ttgtacatag	420
agggag						426

(2) INFORMATION FOR SEQ ID NO:821

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 582 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...582

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:821

gatggagtcg	gctcaagcca	aactctattg	cgccgaaacg	gctatggatt	gactacgaaa	60
gcggttcagt	tccacggagg	atatggctat	actcgtgata	tccggtagag	cgtatgatgc	120
gcgatgctaa	gatcactgag	atztatgagg	taccagcgaa	gttcaacgct	tggtaatcgc	180
atccaaactta	ttaaaaaatc	aagcattaga	ctatgaatat	cgttgtttgt	atcaaacagg	240
taccatact	accgaaatca	aattggatcc	tgtaaaaggc	acgctcattc	gtgagggtgtg	300
cccagtatca	tgaaccccgga	tgacaaggga	gctttggaac	aggctcttcgc	ttcaaggaca	360
cacacaatgc	tcacgtaact	gtgatcacca	tggaaccgna	caggcagaag	ctatcctgcg	420
cgaagcatat	gccatgggtg	cgatcatgcc	atccttgta	gcgatcgtaa	gttcggtgga	480
gccgacacat	ggccacaagt	tacacactct	cttcaagctt	tgagaaagat	cgaccacgac	540
tgattatcgc	cggcgtcaag	ctattcgacg	gtgatacggg	tc		582

(2) INFORMATION FOR SEQ ID NO:822

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 549 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:822

ggacgtattc	cgctcaatga	aacggatcgc	tcgccccaaag	cgagtgtaga	ttttccatgc	60
gtgggactcc	tacggatata	gagaagctgc	agcgcaactt	atggaaatgg	cttctcagct	120
caatatggat	atttcgttcc	agcgggaagc	atgttccgtc	gcatgcgtcg	tctcatttgc	180

ttcgatatgg	actctacctg	attcagacag	aggatcataga	cgaactggct	atcagagccg	240
gagtagcgat	cgggtaaaaag	ccattactga	aagtgccatg	agaggcgaaa	tcgatttacc	300
gaaagcttcc	gccagcgagt	ggctctgctg	aaaggacttg	atgatctgtg	atgcaggaga	360
ttgccgaaag	tcttcctatt	accgaagggtg	tgagcgggcta	atgaagatcc	tcaagatggg	420
aggcttcaag	atcgctatcc	ttcgggggga	ttcatgtact	tcggcaacta	tctagccaag	480
aagttcggaa	cgactatgtc	tatgccaatg	aattggaagt	aaaagacggt	aagctcacgg	540
ccgatatgt						549

(2) INFORMATION FOR SEQ ID NO:823

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 524 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...524

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:823

gggcttcctc	ttttcgtgaa	acccaatgtg	ggagggttcca	gcacgcgat	accaaggtgg	60
tggaagctgc	acagctcctt	cgggcaatag	aacaagcctc	tcggaaggcg	aagaggtaat	120
gatagagcgt	ctgatatgtg	gtaccgagtt	acctgcgggg	cattcctcag	aaaaaaagaa	180
gtggctcgcat	tgccgtgaca	gaagttgtcg	cacataatga	gtttttcgac	ttcgatgcca	240
aatacacgga	gctgtagagg	aaatcacacc	ggcgagaatc	agcgatgaag	ccaccgattg	300
atacagacca	tgactgcgcg	catatacgag	cttctcaacg	ctcgggcac	atacgtgtgg	360
actatattca	tcgaagcgga	tggtattccc	acctgctgga	agtgaacacg	acaccgggca	420
tgacccttac	gagctttatn	cccagcaggt	tcgagcagcc	cggaatggat	atgaaagaag	480
gtgctttgca	tattcattcg	ggatggactt	gaatgagacc	caat		524

(2) INFORMATION FOR SEQ ID NO:824

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1165 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...1165

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:824

ggaagttggt	cagaactcca	ctgataatgg	agtcacatctc	tgccaatcgc	attcgtgttg	60
gctgtttact	gctgcaatag	agtcatactg	catttttact	ctttataggc	actggagttt	120
tttccacatg	ataccaaggc	aagagttgcg	ctgtggcgat	aaacagtttc	ttcttcatgt	180
tcgtaatact	tttattgctg	gacacttcat	tcattcttaa	cttattgctt	ctcttctttt	240
ctcccttcgg	ggcggctcca	cccacgatga	gaacgaattc	tccccttgga	gggtgttttc	300
gaagtgagcc	agtaattccg	cgagtgttcc	gcggatcacc	tctcgtggag	tttgcctcagc	360
tcccggcatg	cagcagctgg	tcgatcgaga	ccaaagtctc	cacaaattgg	gtcagagtcc	420
tgagcaccgc	atggggcgac	tataaaatat	catcgctcgg	agctcttcgg	ccaattcttt	480
cattcgagtt	ggcggccttt	cttgacaggc	agaaaacctt	cgaaaacaaa	cctgtcggcg	540
ggagtccgct	tgctacccaa	gccggaatca	atgctgtggg	tccgggcaac	attctaccac	600
tacacccaac	tcggcacatg	ctctgacaag	caaaaaacgg	ggctcgtgat	cccgggagtt	660
ccggcgctcg	agatcaaagc	tatgcgtcac	ctccggatat	ccgttcggcc	aatgacttgg	720
ccgtacgatg	ttcgtgaatt	tatgatggct	ctggagcggg	cagtgaatgt	cgtaatgggtg	780
gagcatacac	tgctggtagc	cgtgtcctct	gccaaaatca	ggctctgctt	gcgagtacct	840
tcaaggctct	caaggtaata	tcctccaaat	tgccgatagg	agcggcacga	ctgtcaaacg	900
tccttccatc	gcaaatccta	cggttcagtt	cttctacgga	agaaatccga	cactacttcc	960
gcaaagtcat	ttaccaccgg	tcctctgcct	cccattgcat	ccgtgatgc	aaatagatca	1020
tagcttcagc	gctgacgaca	gcaatccgag	atgggcagag	atgtctcgca	taagcttgca	1080
tcgtcttgaa	acaactcccg	tctaaagcga	aaaaaatcca	acgtagaact	atcttctgca	1140
aatcgaagcc	tgcaggagag	gtctc				1165

(2) INFORMATION FOR SEQ ID NO:825

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1008 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1008

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:825

gatctatctt	gatgtccaag	tggagtcttc	ccgcgtttgt	tggcctgagg	atcacctctg	60
ggcatatttt	tccggcatcg	gaatagagtg	cttcggaggc	tggatcatgc	ggctcttcgcc	120
gaagttgctg	cgaactcgt	ccactctttt	tttcagcttc	tctgccggag	cttctgttatc	180
ggcatagagg	atattccac	ccgtcgatct	ccctccgtaa	ggcgaagggc	caaccatctg	240
ctattggcgt	atcgggatga	aagagccgga	tggattcggc	caaagaatcg	atcccgtatc	300
tatttcagta	ccgatacttg	tcagtcgatg	cggagtacag	cgaatatccc	ttggggccacc	360
tcggacaggg	ccgacaggag	atcggatatg	cctctcccga	acgtgcactg	gctcctacga	420
cagggatgcc	cagcctgcgc	ggagacctct	caggctgatc	tctacgccgt	tccgttcggc	480
ttcgtccatt	gattggcaca	taggacggca	cgatccgtta	tttcgaggat	ttgcaggata	540
gattcatatt	ccgctccagt	cgggtagcat	ctgccacgat	gagggtaaat	cgggcttgcc	600
gaagagaatg	aagtcgcgag	cgatctcctc	atcctcgagg	tagaaaggag	agaatagggtg	660
ccgggaagat	ccactatctt	gtatgagagc	cggcatacga	gaatgcacct	tcggctttct	720
ctaccgtttt	cccggccagt	tgcccgtatg	ttgtttgagc	ccggtcaggg	cattgaatac	780

cgtatcttgc	ctgtattggg	attgccggca	agggcgatgg	tgaagtcgta	tcgtccgcat	840
cgggtgccc	at	gcgccgagt	ttatttccgc	tgtgtgcggg	gcacccgttg	900
aagtggtagc	actctttttc	atcattcgat	tgaagttggg	ctgaacgtta	ggctcttttac	960
ctggaataaa	ggatataacg	gcttgatcgc	gtcgcaaggc	gatggccg		1008

(2) INFORMATION FOR SEQ ID NO:826

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 499 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...499

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:826

cggcatcgtt	ctgtagcgac	aggtacgacc	atacggctac	ggggatagtt	tggctttgca	60
ccaaattctc	ttttaatcat	tcgactgacc	tctcgataat	gaggagaagc	catttcatga	120
accgcacata	tccgaaccgg	ctttcaggag	taagatatac	gggtgaagtat	atggcttctt	180
gctcaatgaa	atccaatttg	ttacaaatat	actgacagac	agtgattcta	ccaaagcatc	240
cattcatata	tttccggctg	tgagtgcac	acaataaaca	aaggccggtt	agagtcgaag	300
ccggatattg	gagcggattt	tagtagtttt	gcgctccgtt	agaataactga	atataaggat	360
gtttcaagat	ccaagaaacg	atcgtcaagc	ccgacctctt	cgacaagtat	tttgtctgcg	420
attatgctac	gtgtcagggg	attgctgcgt	ggaaggagaa	agcggtgctc	ctctcgaagc	480
gggtgaaagc	gattttgct					499

(2) INFORMATION FOR SEQ ID NO:827

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:827

ggcaatgaca	atttgcaaac	gataacagtg	cgtcgcaata	tggccaaatc	agcttggcca	60
tgaataccgc	caagctgaca	gaggtggagt	actctcttat	aacacctttg	acaaaggcac	120
cttggctcca	ttcgaccctt	ccgaaacaat	ccagacttag	cattcaaaaa	agattttgtg	180
accgagccgg	ccggagtgat	tttgataatc	agaaagggtt	caaacctgtc	ggtcctgaga	240
atttctttat	ggtttcgagc	gtaaaaattc	agttattgct	gcggggagaa	aaattcttgc	300
ctgatcataa	aaggcaaata	tcaaggtagt	aatgcctttt	cttctacaag	atagactttg	360
tccatcagga	cgacaagacc	aagcgttacg	actcatacgc	aatcacttct	ataaggtgac	420
gatcaatgat	gtattttaaag	cggatttccc	acaatcgagg	cggctctttc	aggtgctgct	480
gcgaacaaca	agctctctcc	gaggagctgc	aaatgtaccc	cgtctttctc	tgacggaaa	539

(2) INFORMATION FOR SEQ ID NO:828

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 529 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:828

gggttcaaag	agatattggt	accggccgat	aatttccggc	aggaggatgc	ggccgcttcg	60
gtattcggct	cgtgccggtc	agaaagggtg	aggaagcctc	cgccatctgt	tctcgaaagg	120
aagagaatag	aaagaacgga	gaaaacacta	tcaggagaga	gctacaattt	ccaaaaacat	180
acaagtaata	atgaaaagaa	caaactattc	cgtatcggga	tacttgccat	cgttgccctc	240
ttgctacagg	atgcaagggg	agccgatacg	cattttatca	ccgatgcaga	cttcgcaaac	300
aggtgcaaga	agatctgaga	gtaaaacgcg	aagctctatc	cgaggcaatc	tcttcgaagt	360
gctggagcgc	gattcgctcc	gtaccgaaga	gccgaagcac	tggagttcct	gtatgcctac	420
atgacttctg	ccggacatcg	tgactactcg	ggcgacttct	acttgcagaa	tgtacgcgag	480
agcttccgcg	aagaagaaga	atgtcgtggg	gtaaggaagt	gcccgactg		529

(2) INFORMATION FOR SEQ ID NO:829

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 433 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...433

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:829

cggagcgcag	ccgatagccc	gcttcaccca	gaaactggat	cagcccaatc	cgtaaccttt	60
gtaggcaaaag	gcaaattgga	tgagatacgc	gcctatgtca	ggagaacgag	atcggcatgg	120
tggtgttcga	cgacgaactg	tcgcccagca	gctgcgcaac	atcgaaaaag	aacttcagac	180
caagatcctc	gatcgtcggg	tcttatcctc	gatataattcg	cccgaacggg	acagacggct	240
catgcaaaac	gcaggtagaa	ctggcgcgagt	accagtatat	gctgcctcga	ctgaggggct	300
atggacccac	ctcgaaaggc	agcgaggcgg	tgctggcatg	agagtccggg	agaaaagcag	360
ttggagacag	accgccgtat	cgtctttgga	caaataagctc	ggctcaaaga	agaacttaag	420
ggacatagac	aag					433

(2) INFORMATION FOR SEQ ID NO:830

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2096 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2096

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:830

tccgaactta	tggtctctgag	gtaactccac	ttgtcgccca	cagtgcggag	agtctttctct	60
ttaccatcga	aaacgatggg	cagaggttcg	gccagagggt	cttctcatcc	accatcaggg	120
taatgagtac	atagtccttt	tccagcagct	ctttactgta	ggatcgatcc	aaacggcatt	180
ctccatcttt	ctacagtcac	gcagccgtga	cctgagaagt	cgaggaggac	aggtttgttc	240
tcctgcgagc	aaaagccata	ccggcctcat	aatccgtaaa	gtgagcatga	acttgccact	300
atagagattg	aaatcctgcg	tgtggagcgg	cggagcaaaa	gcattacagc	cttgagcggg	360
gccccccaca	aaccggggat	catatataca	gcaaagccaa	agagacagta	gccatcataa	420
agcgcggcac	agagagatgt	gccattcgct	atcatggctg	aaacggatcc	atcccaagag	480
atagcaaccg	gcagagcgaa	aatgacaatc	cagagagcga	ggaaagtctc	acgatcgaga	540
tatgccagcc	atatgccaaag	tctgccacgg	agaggaaactt	gagagcaaaag	ccaattcgag	600
gaagccgagt	accaccttca	ccatattcaa	ccatcctcgc	tcttaggcat	accctgcaac	660
cagctgggga	agaccgcaaa	aagagtaagg	gcaaagccaa	tgaagtggca	aagccaagca	720
tgcccatggc	cggagcagtt	tggagccggc	tgtagcagcc	tgtaccaaga	gcgtaccgat	780
aatagaccgg	tacaagagaa	ggacacaaaa	gccagcgtaa	aggccataaa	gaaataactga	840
gcaaaccggg	cgtagagtcc	gccttgctgt	ccagcttggt	agccaagatg	acggcaaacac	900
cagctcgaat	gctccgaaga	aagagatagc	gagactacca	acagcaggaa	gaatatgatg	960
ttgaagaccg	cattcgctggc	aaactgttca	gagaattgac	accgaaaata	cccgtaatga	1020
gcaagccgac	actacgtaga	taacgatgat	ggaagctccg	taggttaaagg	catctctccg	1080
gctttcttct	tgtccttatt	acgcttaagg	aagaagctca	ccgtcatggg	atcataggcc	1140
atacgcaagg	agtaagcaat	gcaacaaaaac	cgtagagaaa	ccatagagga	aaatcttcca	1200
cggagcactc	tctgcctgct	tgagctatca	tcaccgtatg	cacgcaactc	gctaacaacc	1260
ggtgtccaca	agtcgccttg	gacgaaagag	cttcggcagc	atcgggtctgc	gatgtagtat	1320

ccgtgcggtc	tcggcagcaa	ccgcttcagc	agcttcagct	tcggtatcag	gactgcagcc	1380
ttgtcttga	tcctcgaagc	atcgaaagag	aagtcgctcg	ttcgggtggc	agacagtttt	1440
catcattaca	agccatgaag	cgaacaccac	tttgatagag	aatttggcag	ggtccgtcac	1500
ctgaattttc	tgacggaaaa	gacagtcttc	tcgtaccatc	tcagatccat	ttcgaactgc	1560
ttgtcgtacg	gttgacagga	gctttgtcag	gaatagcctt	accgacaagt	ttgggtccgt	1620
cattttatcg	aacaggaatt	ctgtggatgt	agggccatcc	tcgggcgatt	ttggtcataa	1680
aggtgccatc	cgggtttgat	cgtggccgta	aacacaatgt	tttctcaggc	gtgtcgctat	1740
cctgaagaga	ggttttccaa	acgatacatc	cttgataatc	tgagcagatg	ccccgatggg	1800
caacatagag	agaacagtag	ggctaaagct	accgtccatt	tgctgtttct	gtggttcttg	1860
ttgtcattat	tatatgttgg	attattaaaa	ttagtcagct	acctatttgg	acgttttttt	1920
gtctttgata	ttgtttggtc	tgctgcagtg	ccttcttcga	atgtatcagg	cggcgaaaaga	1980
gtttgggcaa	aggcaactta	tattcctgct	atctcccgtt	tcaggatgac	ggaatacgaa	2040
tcgcgttccc	tgtagggcag	acagtccaga	tggcggaaaag	aactaccctg	cctcaa	2096

(2) INFORMATION FOR SEQ ID NO:831

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 650 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...650

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:831

tagaggatcc	cctgtagatt	tctcgtcatt	gtatagctgt	ctgaaaggga	taccgctgtc	60
atgttctgtg	aagtggctaa	ttctccggcc	aaagtaataa	gcagtttaca	aaggatacca	120
aaggagaagg	aaagccttgg	ctaaaagtgc	atacgtgcag	gaaagcttct	acattggggag	180
ggaaaatctc	gatgcttggg	ttcgatcaag	agcaaaaacg	aactcatcgc	agatgttgtg	240
gcattctgca	gtctccggcc	aagaacgtta	ttgcatcttt	gcagtcagca	ggtcaacgat	300
ccatggtgtg	ttgaagacct	tggagaaaa	ataattcaac	agttaattga	aaacttttaa	360
tactcaaaaa	taaaatggca	gacattaaag	ctttgctgaa	caactgggta	acttgacagt	420
aaaagaagtt	agcgaactcg	cactatcctg	aaagaagaat	atggcattga	gccgggcagct	480
gctgctgttg	tgtagccgct	gctcctgggtg	ctgccgggtgc	tgagctgaa	gaggagaaac	540
ttctttcgac	gtagtcttta	agagtgcttg	agctgcaaaa	ttgcagggtgt	gaaagctgta	600
aagaacaatg	cgggtcttggc	ctgaaagaag	caaaggactc	gtggacgcag		650

(2) INFORMATION FOR SEQ ID NO:832

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1530 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:832

gttcctttcca	agaagaatta	tcctccaggt	cagcatggca	ataaccgtct	cgtaagacga	60
gcgagtatgg	cctccagctt	cgtgaaaagc	aaaaagcaaa	tatacttacg	gtgtattgga	120
gaagcaattc	cgtcatttgt	tccatcggca	cagcgcgcaa	agggtgtaac	gggtgagttg	180
cttattcagt	tcttggagca	cgtttggata	atgtgggtgt	ccgtttgggg	attgccccga	240
cgcgctctgt	gcacgtcaat	tggtttccca	tcgtcatatt	accgtagatg	gcaggttgct	300
aacattccct	cttattctgt	taagcccggg	caggtgatcg	gcgtcgtgag	cgttctaagt	360
ccttagaggt	tattgctgat	gctttgacag	gttcaatcac	agcaaatac	cttggatgga	420
gtgggatcag	tcgtcattgt	cggtaagctg	ctgcatatgc	cggatcgtac	ggacatccct	480
gaaaatatta	ggaacagctg	atcggtgaat	tgtattcgaa	ataatccata	gatcccatgc	540
aattattagca	tttcagaaac	ccgaaaatgt	attgatgatg	gagacgtcga	ctcgatcgcc	600
aagttcgagt	tcaaaccctt	ggagcccggg	tatggtatac	cattggcaat	gcgcttcgtc	660
gaatactctt	gtcttcgctt	gaaggtttgc	gattactgca	atcaagattg	aagggtgtaga	720
gcatgaattt	gctacattcc	gggtgtattg	gaggacgtta	ctaataattat	cctcaatctc	780
aaacagttcg	ttttaagcag	attgttccta	atgccgatgt	agagaaagct	acattgttat	840
ctctaattcg	gaggtgttcc	gtgccgggtga	tttgaatgca	cactttcaaa	ctttgaagtg	900
ttgaattcga	atcttgtcat	ttgccacctc	gtaagtcggc	tacgcttact	atggagtttt	960
ccataaataa	ggggcgtggc	atgtgtcggc	agaagagaaat	cgcgagagc	ataatgagct	1020
ttccacgatg	cgatcgactc	aatctatac	cctattcgga	atgtcaagta	tgcggtagga	1080
atctccgcgt	agaacagaag	actgattacg	aaaagctcct	gatggaatga	ccacagatgg	1140
ttcgatccgt	cctgtagatg	ctcttcgtga	agcagccaaa	tcttgatata	ccacttctct	1200
ctgtttgcag	agaataagat	agcgaagagt	atgtggatat	agtcgatact	gatgagttcg	1260
atgaagattc	tctgatatgc	gtcaactatt	gaagtcaaag	ctttcagggtc	ttgacctgtc	1320
tgctgtgccc	tcaattgtct	gaatgcagcc	ggagtagata	cgttgggcga	ttagttagtc	1380
tgtcacggag	cgatctgatg	aagattcgca	acttcggaaa	gagtccttga	ctgagcttga	1440
cgaactgctg	gcaacgctga	atttgtcgtt	gggatggata	tcagtaagta	taaattagat	1500
aaagactaag	aacgatgagc	atataggaaa				1530

(2) INFORMATION FOR SEQ ID NO:833

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 623 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:833

ggccagttcg	atattgcttc	ggtctgtcat	gctctctgcg	acaagctgac	tatcggcatc	60
cgcatatcta	tggcaatgta	caggtggaga	atgctgccaa	gtggtacgca	actgggagca	120
actcaaactc	cgcgaaaagg	atgggaaaag	tccgtcctct	ccggcgtgcc	gaagtctctc	180
cctgctttgg	tgaagactat	cggatgcagg	agaaagccgc	aggcgtaggt	ttcgactggg	240
agcaagggag	caggtatggc	cgaaagtga	agaagagctg	aacgaagtcc	gagggctatt	300
gtcagtgaag	atccccgatgc	catggaagca	gagttcggcg	actgctcttc	gccgtgggtga	360
atgccgctcg	tctctacggg	atcaatccgg	atatgctctc	gaacgtacca	atagaaaatt	420
cgacagccgt	ttctcctatg	tgagcagcgt	gccaaacagc	agggcaaagc	tctcagagat	480
atgacctctc	ggagatggat	gcgctgtgga	atgaggcaaa	acagaaagga	ctctgacctg	540
ttccaagcgg	aaaaagctat	ctttgtaagc	acgatttagc	attattacat	aatgaacgaa	600
gacattaaaa	agaatacctc	ggc				623

(2) INFORMATION FOR SEQ ID NO:834

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 753 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...753

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:834

agcggggcca	aaccttttct	ccacccttgc	caaaaaccag	cttccttttt	ctaagttttc	60
tattatagca	gaaataaatg	cattattttc	cagctccaag	attattccgg	gtataatggt	120
tgttgctttt	attgttttca	tataagatcg	accactctat	ctgcggataa	tttgccttta	180
gcgtaatctg	taaattgagc	ttacaccaac	cttttatcct	gtaggctgca	atggagggaac	240
aattttgagt	ctgcactcag	gattatattg	attgattgct	ttgcaaagat	tttcgttcca	300
agaacatttg	attgataata	ttctttcttt	gttgttcgtg	aaattgtgcc	gccaagtga	360
caattacatc	ttgtcctttt	acaaaatctt	cggagattcc	aagttcgata	aatctccttt	420
gataactttg	actttatctt	cattgtttct	atattgctac	tttcctttgt	caaacaggtt	480
attggtgtgt	tgtttttgac	aataattcaa	cgagtctggt	tccaagaaaa	cctgttcccc	540
ggttatgcc	attccttatca	tttttatatc	attcataaaa	tatttcttat	tattatcgnt	600
ctctccaaag	agtgtagtag	gcgtacngat	atccatgcgc	angaaagcaa	gtatgggttt	660
ttcggcctga	ttgggaatcg	gagactaact	aaaagaactt	tttctttttt	gtgttttcgt	720
ctgaaattcg	agaaagctct	aaagactacc	tat			753

(2) INFORMATION FOR SEQ ID NO:835

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1247 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1247

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:835

ggctccatca	agcgggagcac	cccaaagagg	ccactatcga	agctatacgg	aggcagaagg	60
ggcagcaaac	gaggcttcta	cacagggtgt	ttcgggttatt	cgacggtagc	agcttcgatt	120
cggctgtaat	gattcgctac	atcgaacgct	tcccgatggc	cattaccttt	ttcgcagtgg	180
cgncggcatt	accatcacag	ccgctgtgac	gacgaatacc	gcgaaacaca	acaaaaggta	240
tatctccatt	ctgatcgaat	atgtgctata	tcgaaaccat	ccgcatcgaa	gacgcctgcc	300
ctatctgctt	gcgctccatc	aggaacgaat	gagccgcacg	tgcacgaaaa	gggctttccc	360
ctcccggaaa	taccttgcc	gacgaatcta	tgcctccgga	attgatgtgc	ggaatgacca	420
aatgtcgtat	tctatatgg	aggagggc	ttcggacgtt	tccttttcac	cttatacacc	480
acgccaaaata	cctccctgcg	tatcgtaacg	gctccagccg	atgttgacta	tcatttgaac	540
aggttgaccg	ttcgtctctc	gaagctcttc	tcaagcaaaa	aggagaagcg	atgaaattat	600
tatcctgcgc	aacggactcc	tgacagacac	atcctaccca	acctccttct	acatatcgga	660
ggagaacttc	tcacaccgcg	cgccccctct	tagaaggcgt	acaacgccgg	tatctgctcc	720
aatccgggtca	aatacaccgg	cagacctgca	aatcgaagac	ctcaaaaaag	cagaagaaat	780
actgtgatca	atgccatgct	ccccttgggg	cataccattc	gtatacacc	atccagatta	840
ttttttgatt	atcatcttcg	gctatcggat	cgagttatcc	gaagaaggct	tagaagagg	900
aggagatatt	gcagatagcc	ccgatgggat	gccggacgtt	cgttcggctt	gcggatcgga	960
caggatatgt	gagatgacac	gggcgttttg	ccataggcta	taccgtcctt	tcttttcac	1020
aggtcgccaa	caaccgcagc	tctgtcatca	ggcgggtggg	attctgcac	ggaatcgaac	1080
gtacagagag	gaacgcacct	ccacgccttc	tctattacga	taggcattgg	caaataggcc	1140
agctgatagt	cgagctgctc	tttctggatg	gtacgaatct	tatacgaatg	cgtcagcacc	1200
attcgattaa	gcagccgaaa	gcgaagtcca	aaatccaatt	tggatcc		1247

(2) INFORMATION FOR SEQ ID NO:836

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1367 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1367

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:836

ccggcaccgc	cggatgatgag	aatatgacgt	cggaagttca	tcgttcttca	tgtttttagca	60
gattcagaca	cgcagccaaa	gaatcctgcc	agtgagggtg	ctgatgtcga	aagtgttttt	120
aataagcgtc	ttatccaaga	cggaatatgc	ggcgcgtcta	cttttgtcgg	atattcatcg	180

ctatggcaag	ggctgacctg	catgctgtat	gaccactcat	tcgggcaatg	gccactgcaa	240
agtcgaccag	gagcatcac	cttcgttgct	aaagtgatac	agccccgtct	taacggcagt	300
tgtcctatag	ccagacggtg	tatgaaagca	gccaaagtcg	cagataggta	ggagtaccga	360
cctgatcgaa	gactacgttt	aatgtatcgc	gtcagctgtc	agccgaagca	tcgttttcac	420
aaaattattg	ccgaacgatg	atacagccac	gatgtgcgca	gtatcatgta	tcggcagtcg	480
gctgccagca	agcctgttct	ccttttagct	tggtacggcc	atacgcaccg	agaggagctt	540
cgggatgtct	tccctatagg	ggatattagc	cgtaccatca	aatacatatc	cgtagaaata	600
tgtatcagca	gggcatcata	cttcgcagca	gccgctgcag	atgagccgca	gcttggtgat	660
tgactttctc	ggcagaggct	tcatcgctc	agctttgtcc	acagctgtat	atgcggcaca	720
gttgataatg	atccccatgct	atattcctcc	ataaaacgga	ggacagcatc	tttatctcta	780
atatcagttc	cgctaagtcg	gtgaaaacaa	aacggctgtc	agccgaagcc	aacaccgaag	840
ttcactaccc	aactgacct	cggctccggt	taccagtatt	cgttcattcg	tataagtctt	900
gattgtaggg	gaagagattc	cggaaatcct	cctcgatata	aattccgtcc	atgacggatt	960
ggcctgatct	ttagctgaga	gataatgtcc	tctgcaggga	ttttccactc	aatatctaag	1020
ttcggatcat	ccaggcaatg	gctccttcgc	tttgtggagc	atagtagttg	tcgcatttta	1080
ctgaaatacg	acttcgtcac	ttagcacgac	aaaaccgtga	gcgaatcgcg	cgggataaac	1140
aactgtctga	agttcgtatc	ggaaagctcc	actgctcata	tttgccgaaa	gtaggcgatac	1200
caaagcgaat	atccacggca	tagtcatcac	acaccacgt	actactcgta	ccagcttgct	1260
ctgggcatga	ggagtttctg	aaagtgaagc	cctcttagta	caccatatcg	ggatgccgat	1320
tcgtgtcttg	tacaaaatta	atgggcgaat	acccgtttct	atctctt		1367

(2) INFORMATION FOR SEQ ID NO:837

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 855 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...855

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:837

tcagtccatg	aagaataggc	agcgggatcca	ctccgacaaa	cgaacggcat	catcttgtaa	60
gatgggacca	tccacgtagt	cgttcggggt	cggccgatag	taacgatcag	ctttttctgc	120
tcctcggcac	aagcctccat	cacataggca	gcgtactgat	ataagtaaag	aagcgagtc	180
cgacatcctg	catatcaata	gcagcacatc	gacgtcggcc	aacattcgag	gagtaggttt	240
cttgttttgc	cgtagagcga	aacgataggg	attcccgtcc	tgacatccc	ttcaccttga	300
ccgttgcccc	ggcatcggca	tctccacgga	agccgtgttc	aggcctaaga	tcttgacgac	360
attgactccc	tgccgaagca	gattgtcaag	aaatgttccc	gctccgtccc	caccacgctc	420
gtagcattag	ccaccagtgc	ccacgcttgt	ctctgagaag	aggcaggagc	agctctgtcc	480
tctctgcacc	acaactaccc	gtacctcctc	tcttggggtt	gcgaccgaaa	tctcctgtct	540
gaatgagcag	tctgactccc	gacttcctca	ctcctcgacg	aatgcgtcc	cctgcaactt	600
ggcaaccggg	ataggccgaa	aacgacatta	gcccgcctatg	caggctaattg	cgatagaata	660
tttccggaaa	aagcgaggga	tcatttcctt	cgtttactcg	tcgatgatct	tccaagaaag	720
ccttcaatcc	actatcgtaa	gagggtgctt	gagcagaccc	tttgatggcg	ttgagcgggc	780
aagtgccaca	tcggcaccgg	ctttcgaggc	actgaataat	gtgctgcgta	tgggggatgc	840
tggcagcaag	tacct					855

(2) INFORMATION FOR SEQ ID NO:838

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 687 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...687

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:838

gaagccaaca	actgttatgc	aagcaattcc	tgaatacgat	gataccggtg	actatccaaa	60
agtcaaagta	ttgcctgcga	gtaaactccc	aaacgaaact	ccggtttgcg	tcataactca	120
gacaagcaaa	gggattaaca	ttaaggtagg	actgttgatg	cagtcgatga	tgaaaaccta	180
aacggacgaa	taataggaat	ttttacccca	atgatactct	tggccccgaa	tcggaagaga	240
aactaaaagg	ttggggggtt	tactctccaa	agcctccgaa	gatttcgatc	ttcgcaaacc	300
aatgaaatat	ccatcgactt	aactgttttc	aaagatttgg	ctgttcaatc	accgaaaagc	360
attgtaattt	atacggtgag	acaatctcat	acgtgaaaaa	atgacactga	aaaagggaga	420
cttaatgacc	aagccatttt	taaaggcctc	tataaggtaa	aagaataaga	gcatggcaaa	480
gcgaataatc	cgaggatagg	agacgttttt	gaagtccaat	tagataattg	caagaagtat	540
ttcagttacat	cgcaaatgac	atgacacagc	tcaacagtag	cgtaatacta	cttttgtgga	600
agaataccccc	ttggactgtt	ctccgatctt	agaaaattta	cccgcgggta	agggtgattt	660
tatgcacata	cagtcctccg	atggggga				687

(2) INFORMATION FOR SEQ ID NO:839

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 789 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...789

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:839

aaccggctgc	catccggcgg	atcaactcga	caaagtcgga	tccgattcga	gcatgacgac	60
ttccggtttcc	ggatctccca	tacggcaatt	atattctaca	cataaggatc	tcctcctaca	120

ttcatcagtc	ccacgaagat	gaatccggat	aatcgattcc	ttcggctatc	agtcccgata	180
tcgtaggccc	gataatcgct	cttccacctt	ccgcatgaat	gcttcatcgg	cgaaagggtac	240
tggcgaacgc	tccccattcc	gccgggtattg	agcccgggat	ctccatctcc	gattgcttat	300
aatcttttggc	gactggaagt	atgtgatagt	ctttgccatc	ggtgcaacaa	atacggagca	360
ttctatgcc	tcgagaaact	cttcgatcac	caacgacggc	ttgcagcacc	gaatttgcca	420
ccgagcatct	cagccaactc	cgtttggctt	cttctgcagt	cggagcaata	atcacccctt	480
tgccggcggc	aaaccatcgg	ctttcagtac	ataaggagcc	tgcatcgtat	ctatgaatgc	540
ttgcctgcat	ctgtttggtc	agccgtgaat	gtctgataag	cggcagtaga	atcccgtgtc	600
gtttcataaaa	agacttgctg	aaatccttgc	ttccttcaac	cgtgcacctt	tggcatcggg	660
ccccacaatg	aggagatcgt	gcagtggctg	tgatttcgga	agtagtccac	tatgccacgt	720
acaaggggtt	cttcagcccc	actaccagca	ggtcgataga	actcgcgctg	taccacttcg	780
gcaacggca						789

(2) INFORMATION FOR SEQ ID NO:840

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1914 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:840

ggcggttttat	gaaagagtga	tttaatgccg	tttggtttat	tccggtcgca	aaatatgtgc	60
agcttttttca	tggcaaagaa	aaaatcatcg	aatgttttat	ggcttcatag	atacagacta	120
tatcaattca	ggcttttctt	ttctcagaag	gattcgcccc	aaaaaagtta	tcgatcggag	180
cagtataagc	atgaaaactcc	ggcgaaaaaa	ggaaagaggg	ggaaaatcgc	tcgattggcc	240
gagggttttgg	cggaaaaagt	gcctgtttct	ccgtattttt	gtcccgtttt	gaataaaaaat	300
cacacaaatg	atcttatgaa	acgaaccctt	gttttcttat	ttctgctgcc	gttttggtctc	360
ttcggggccga	ggcacagtct	gcacccgagc	aaccgagacg	aaggattttca	tcttctcgcc	420
ccaaaaggag	atggtgtacg	tgccatcggc	tatccggcag	gaatcggatt	gccctctctg	480
gataattata	cgtagaaggg	gcttcggctt	cttttgccgt	cggctacgaa	cggggcgtaa	540
acaactcgca	gaagggtctt	tgctatccat	ctatgcggaa	ttggattggc	ggcattcaga	600
tctgtatctg	acaaaagatc	cctgcctttt	tctgatgttc	tgcgcagaat	cggtttcgat	660
tttttagccgg	agcaggcgtg	cacaagggtc	caaccggaat	atcgaactct	atgcaagagg	720
tgcaagtaggg	gcgagttttt	cccggaaaaa	aacggttcat	catcgagaga	actaaagggc	780
ggattaacgt	tagccttagg	gtcggactga	gttgctcatt	gagagacaat	ttcccgctct	840
tatcgatacc	ggacatccg	acatcgtgcg	cggcgccctt	gcttgatgtg	gtagcagaag	900
cagcgtagga	tttaccggaa	ggtatgaagc	cctactgacg	gtcgtttgtg	ctattattct	960
cctctccttg	cctctcggtg	gcagacgggtg	gtgccggaat	gggatgaata	catagcagag	1020
cagatagaac	aggtgcactc	ggggaggagc	agggagccga	atttctggaa	cggtggtatg	1080
gcagaagcag	catccgctgg	acatcaatac	ccttaccggg	gaggactgga	gcaattcccc	1140
tttctcaatg	agtttcagat	ccgccgtttc	ctgctcaccg	acatgctcat	cccagggggt	1200
tcgacagcat	ttgggtgctg	agtgaattgc	cggctgggac	agacgtacct	gtctgctctt	1260
gtggccgatg	ctgaggtgca	gaagcggagc	gagtcggctg	ccgcctcttt	tcgcgagatc	1320
ctgcttatgc	ccgtcacgat	gtatcgggtc	ataccgatgc	catcctccag	cacaggaggg	1380
ctaccgtccg	gatagccggc	atccgtatcg	gggcgatccg	tgggtggcgg	tttgcgctgg	1440
agctacgcta	tgggcaatcg	tttttcctta	gccttactgc	gtccaaagac	cggggagaac	1500

cggccttcga	taagcggcga	agggcttcga	cagctattcc	gcccacttct	tcattggaagg	1560
gaagggggtg	tgcgagccgt	ggcactcggg	gactatcgaa	tagggatggg	atacggctgc	1620
tcgtcaatca	ggcctctttc	atgggaatgg	cctacgccta	tcctcgggcg	gaaccacgct	1680
gcgacgtgcg	tttacctatg	ccgaggacaa	cttcagcgcg	gggccgctac	cgctcttgca	1740
caaggacgat	gggcactgac	ggcattttatt	cgcgccaggg	gacgacgac	accgtcaccg	1800
aagacgggtgc	cataaagcca	tttaccacac	cgggctgcat	cgtaacngatc	cgagatcgcg	1860
cgcgaaacgc	tgccacgatg	acaccgaagc	acttncgtct	gctatacgac	gtcg	1914

(2) INFORMATION FOR SEQ ID NO:841

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 661 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...661

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:841

cgatgcgaaa	ggttttgccc	gtttcgcgat	tgactatggc	acgaaggagt	cgaaattatt	60
gaaggatttg	cttactccga	tatgctgctc	cacgatctgg	acgtgaccac	tcccctacta	120
tcttggtgta	tgagaatgag	cttgctcgct	cattcatcaa	cttctccaga	tcattgccga	180
ggtaatcggc	cagcattatg	ccacttcggg	cgatacgctc	agtttcttgc	cggcagcagc	240
cgacagatga	agtcgggcat	cttatagtcg	ggtatggtct	cggacacgaa	tacttcccga	300
acttttcagc	cttcgtatag	aaagcctttc	gcttatcggg	tttttcttat	aggcaatgac	360
cagaatcgta	gtatcgggga	aagtgccata	attgcttcga	gcaagtccat	attgtccact	420
aactgcgcct	cccgaacgac	gtcaactgcc	tccggcccat	catcgggaaa	cggcgcgctt	480
cgttcgctat	tcggctacgg	aggttttgtc	gccgtagagg	ataaccctgt	tgaaagtcca	540
ttcatctacc	ggcaccacgt	gcgtctccag	cagagtggcc	aactcgtcat	atagaagggt	600
tctttcggcc	ggccagcaga	tagaagtggc	gaagaatggc	acttacgtac	agaatcgaca	660
a						661

(2) INFORMATION FOR SEQ ID NO:842

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1086 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1086

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:842

```
ggtcagtgc gagaccagt gtgtccgcgt aggcataatcg ggacattgca cctggagttg      60
ctggacaagg atacatccgg ctctcaagta acagcccgat gaaagccatg atatgggctt      120
cggactatgc cacattatca ggacgcttca gagagaaacg ggcgaaacat tcgattccgg      180
tctccacgtt ctggtatggt aagtgtatcc taccatgagc aatatggact aagccttcgc      240
attctgacat agaccctcc tacacaatgg gggctatggc tcgcaaacgc aaaggatcat      300
cgaagaactg cgccggcaag gtctatacga cctcaatcgc agctgtccct accccgcccc      360
acccaacgca ttgccatagt ctcatccggt gcgctgccgg cttcgaagat ttcatcgcac      420
accttagcca ttcgcccgag ctttctgttt ctatcccgtc ctcttccaag ccgtgatgca      480
aggagcacia ccgaagcatc ggtgttggga gctttggagc gcatcgcata tcaccgggat      540
ctttcgatgt agtggtcac attcgcggag gaggagcagt gagcgaacgg cagctttcga      600
ctcgcttgcc atcggaacag catgtgcacg cttcccttcc ctatccttac cggcatcgga      660
cacgacaggg acgagacggt ggtggactgg tagcttatcg ttcgctcaag acacctacgg      720
ctgtggccga ttttctgtaa actgccagcg cgaagagtgg aaattgatcg acgaccttcg      780
ctccgtgctg ccgaaggact tcgaatgatg atgatgtact gccacgaacg gctattcagc      840
tatcgctccg cacaccggcc atactgaaat catctgttcg tgagaacacc atcgataaaa      900
gtccgtagaa gatcgcatcc gattagccgc taacagcgga tcgccttcgg acttcagcaa      960
ctccaaatag caagccgcag ctgccggcct tgatgaagag cgaactgaaa caaaatacgg     1020
gtcaattggt caggtagcag cccgactgcc tttattggtg acagccaatc tgaagaacac     1080
aatcga                                         1086
```

(2) INFORMATION FOR SEQ ID NO:843

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 696 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...696

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:843

```
aattgctctc acgttccttt tgcacgact ctattcgtgt ttggttcagt cgcgaaaacg      60
ctgtagcaag tctttcagac gctcttcgtt caagtccgtt cggccataga cgaagtgtga      120
ctgtcggccg attctcctgt acgagccgct ttttcttata gaaagcactt ttgtaggcct      180
ctacttcctg tcggcgggta gctcttctcc ttggagtaat atggccaagc tgtcaagtag      240
ctcgactcgg tcatgtccgc caaacgggcg tttacacttg ttttactttc ttcgctgatt      300
tggattcgtt ttccaaagga gtcggatctg ccacttccag gcttgagcct ccggcaaccg      360
gtctgttgtc gtaggtttca attcttcgga ttaggctgtg ccattgaatc cgtgagaggg      420
ttcgtagggt tttccatacg tactgcttta atgttcactt ccaccgaaaa cctcctgtcc      480
ggagagatac attcggctact tttccaatac aacggaaggt aattatcaga taatgattcg      540
ttttcaaaag accaaattaa agaaaaaata ttgacagacc ataatttgaa ggtgtttgca      600
gggcaaggca ttcaaaacaa gcattctata aagtttttag ttcggttgat gaagtccgtc      660
```

ggtcattgtat tcaagtcact atcgggaaaa tcctct

696

(2) INFORMATION FOR SEQ ID NO:844

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 951 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...951

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:844

ggctctttcca	ttcaattcgg	acttcgtgac	gatgaatcgg	cggctcacca	atgcgactcg	60
gtaggtatcc	actgcttcct	atccatctgt	acctctgtcc	gatgaagctg	ctaatacccg	120
cagtattttg	cggattggta	attacgaaac	cctgtcgttt	tcatttagaa	ccgtatccga	180
atgtgccagc	gaaatatgtt	ggtacgcgaa	tccattgtgc	gcgaaatcac	gtagtcatga	240
ccttttagcag	ttggcggact	tccgctaatt	ttttggagaa	aacggccgga	ttttacaac	300
cagagagagt	gcgatagcct	gattatcatc	gttatgttcc	agatgtccat	cttctctttc	360
tcctttggcca	cactgatcct	gaaaatagct	cgacgatcag	catggacgca	ataatcccca	420
ccactccgag	cggataagcc	aagcataacc	gagtgtgata	gtcggatcgc	cggttcccgt	480
tagatcatgg	atgtctgctc	ggcagctccc	aggcccgggtg	tgttcgtgac	ggcaccggaa	540
gaattcctac	cattgtggac	atggatatgc	ctgtcacgaa	gtgcagaaca	ccgttgtcag	600
tacccccaga	aagacgacgc	ccatagccag	taggttcagg	taagcccccc	cttgccaaga	660
gaggagaaaa	aaccggggcc	cacttgatcc	ccaccgagta	aacgaatagg	atcagtccga	720
actctttgaa	gaaatatgta	cgtcaggatg	cagattcatg	ccgaaatgtc	ctaagactat	780
tccgaaaaag	aacgaaagta	acccccaaag	aaattccgaa	gatctttatc	tttccaacca	840
aatccctaag	gcaatcgtaa	cggcgaccaa	gagaatggag	tgccactcct	acaccgaaag	900
caagtcatta	agccattgca	tattcatcca	acagcttata	gtagtcaata	g	951

(2) INFORMATION FOR SEQ ID NO:845

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 567 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...567

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:845

gatccccagt	tttcaagacc	aacgttggta	agtatatagc	ggtattttacg	tccttattca	60
tttcgctgac	ttgctcgcgt	actatccggt	acattttcca	ttggcttccg	cctgtttgtt	120
ggccaaagct	tgtgtcatgc	tgagttcaat	ctttggcctt	cttcttgcat	cttcaggatt	180
ttctcctgtt	ccactctgca	gcatcttcgc	tggtgaatgc	attcgtccga	agacggcggt	240
ggaaacctcc	gcagctttct	gcatggcagt	catcttggta	gccaagggtc	tttgttctgc	300
tcagcttcgg	ccgcaagttg	tttgttcatg	tcccgaagt	attatattgc	gaggccaggc	360
tgtccatcct	tacgaaagct	ataggcagag	tgcggcagct	tgttctgcct	tatgatttgt	420
tgtcttggct	tttgatgccg	agaacgcggc	atcataatga	agaggatgat	gatggcaacg	480
gccagtacaa	cctcgatgac	ataatggatc	tgtttcattt	gtgaatggga	tatgtttttg	540
gttcgtatta	ttcgagttct	ttgatttc				567

(2) INFORMATION FOR SEQ ID NO:846

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 662 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...662

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:846

ttatggttaa	agacggcaac	ctttccgcag	aaaaaaaaacg	caaggcctaa	ttaaccccaa	60
ctaccagaag	agggtgtgtc	aaaattcagt	ttcaagcagg	ggccgggatac	atcgtttgta	120
tagaaaaaac	gctatcaaat	caatagtctc	ttaatgtttg	cttagagggg	ggagttttta	180
gtatgagagc	tgagtctctc	aatacaagac	ttttgggatt	tgagggggat	ccccctgcct	240
acggaagagc	tgattttgtt	cttccggcgg	aggcgaaaag	ggttcattga	tccatggcct	300
tttcttacgt	cgagctgacg	tgaggttatc	aatcgcatag	aaatcgaacc	gaaaatcgcc	360
caaattctgaa	accaaaatcc	cccaaaaatg	gtcgagaatc	ttttcgttct	caggcgagat	420
tttttcaact	cccgaaccac	ataaaaattt	tctcagacca	cgtttttcag	aactgaaata	480
caccggattt	tcagtacacg	tcaatcattc	ggaagcgaaa	aaggcagtct	gaatgaaaga	540
tgcgccagat	tgtcaagttc	cggaccctgt	ggcatcggat	ttgtcgttct	ttcgaccgaa	600
tagaaccaac	caaccattaa	cggattataa	tccactagag	tagaaaggac	caatcgggggt	660
aa						662

(2) INFORMATION FOR SEQ ID NO:847

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1259 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1259

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:847

gcaatataac	cacggaagac	aaatggctcg	gtcaggctct	ttgtattgct	cggctgaagg	60
aggcccatcc	gcagacaatg	gtgaaagtga	tatccagctg	agaatataat	cgccaatctg	120
cttaccaggt	atggctatac	caagatttca	aatgttatga	tccgggagta	actcctaaaa	180
acattattga	tgctttaacg	gaggaatctc	gttgcccaac	tatacgggcc	acggaagcga	240
aacagttggg	gtacgtctca	cttcggcacc	actcatgtga	agcagcttac	caacgcaacc	300
agctaccgtt	tattttcgac	gtagcttggtg	tgaatggcga	tttctgtaca	acgtaccatg	360
tttcgcagaa	gccctgatgc	gtgcacaaaa	agtggtaaac	cgacaggtag	tggttgctatc	420
atagcgtcta	cgatcaacca	gcttgggctt	ctcctatgcg	cgggcaggat	gagatgaacg	480
aaattctgtg	gaaaaacacc	cgaacaacat	caagcgtact	ttcggagggtg	tcaccatgac	540
ggatatgttg	ctatgggtgga	aaagtataaa	aaggatgggtg	agaagatgtc	gacacatgga	600
ctgtattcgg	cgaccctcgc	ctgctcggtc	gtacactgtc	ccgacaaaaa	tgcaggttac	660
ggctccggct	cagattaatt	tgacgggtgct	tcagtcaacg	tatcttgcca	ttataatggt	720
gctattgcta	ccattcagcc	aatggaaaga	tgttcggttc	tgcagttgtc	gaaaatggaa	780
cagcacaatc	aatctgacag	gtctgacaaa	tgaagcacg	cttaccctta	cagagttggt	840
tacaacaaag	agacggttat	taagaccatc	aacactaatg	gtagcctaac	ccctaccagc	900
ctgtttccaa	cttgactgct	acaacgcagg	gcagaaaagta	acgctcaagt	gggatgcacc	960
gagcacgaaa	accaatgcaa	cactaatacc	gctcgcagcg	tggatggcat	acgagaactg	1020
gttcttctgc	agtcagcgat	gccccgaac	ttcttcgcag	cggtcaggcc	gagattgtct	1080
tgaagctcac	gatgtttgga	atgatggatc	cggttatcag	attctttgga	tgcagaccat	1140
gatcaatatg	gacaggttat	acccagtgat	acccatctct	ttggccgaac	tgtatgtccc	1200
ggccaatctg	ttcgtccgt	tcgaaatacg	gttcgggaaa	agcagatcct	tcttggtcc	1259

(2) INFORMATION FOR SEQ ID NO:848

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1271 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1271

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:848

tacatctcca atttctgaga agcagttata gccggtggag ctatcatcca acggccaaat

aaccgataat	gatcatccaa	aagagcggag	aagccaaatc	gtcatcaaca	cgactatcac	120
acggatagca	ttcacattcc	atctcgttat	gcagcaatac	cgctacacac	gccacacaaa	180
acggcatgat	ccatgtgcga	taaaacttcc	gcttcggagc	ctccccggac	atgtatcgat	240
agcctaagtt	tctctctcct	tctgactgta	accggccccct	gcagaatatc	cggcgtcgta	300
ctgtcttcat	tggaagaaaa	gtgctctccc	gtattgatct	ttttatgact	tcacgaatca	360
ggccgatact	tattacggcg	tgttcgctat	gcaacgcacc	accatcatgt	cggacaagta	420
ggcttcgaat	tcctcgatcg	tttacaatcc	gtatggttct	cccgatcgaa	atgtgaggct	480
aaattgtgca	atactcctcc	agcaggttat	aggcatcctc	gtcgatgtgg	aagaccttgc	540
tcccagattc	atcgtgagcg	tttttttcat	cttgtttttc	cgtaataaca	gattcttctt	600
cgggcttaat	atcgcgcacc	aatagttgca	atgatttttg	ccgttgaatt	cgttctcttc	660
tatcgtgtag	caaagacgaa	atgagcgttt	ttgatctcat	cgcaatgacc	ggcctgatta	720
aacgcaatcc	cactcccgga	tggcgttcgc	ccgatcccac	tctcacatct	atcttcagggt	780
gttcgaagct	tttctacag	ccctgctacc	accggcatca	tacagttgtc	gggtataaag	840
accggcttgg	agttttccgg	gccgaatggc	cccatccgct	tgggttgctg	agaagtttgt	900
aattgacctc	ttcgatggat	atttcggcat	cacatctatt	tgtggcacca	atagttccgg	960
cgatacagcc	tcttcggcat	gtccgtaatc	atctttcggg	aggtttccag	attctcttct	1020
ttgatcgtcg	accggaggca	aaaggatgcc	ctccgaaatt	gaccagcaag	tccttgcattg	1080
ttcgatggct	ttgtacacat	cgaaccctcc	tacggatcga	gccgagctga	aatgaaatca	1140
ccgctcttag	tcatacagat	cgtcggggcg	gaatagggtc	ggtcacctct	ctggccacta	1200
tgccgataac	gcccttgtgc	cattcggccg	gtagataacg	aggatcttct	tgtccacatc	1260
ggatagctcg	c					1271

(2) INFORMATION FOR SEQ ID NO:849

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 356 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...356

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:849

gctgtccgtt	tcctatcct	ccacggggcg	atggcttggg	gtggagtatt	tccgagagct	60
tggctcgcag	gcatacggca	cctcttacga	ggagggtacg	gcttcgtaga	taatatcctg	120
tgggcggaag	tagtagtaac	cattgtcctc	agcaggggcac	tgatgggtctg	acgctcttcg	180
tgcagctttg	ccaaatgaac	tggctctcct	tcctgatcaa	agacggagtc	tgcctgtaag	240
ccagatgctg	tcggggaaaag	tgctgatcgg	taagggaatg	atgctgtcgt	aatgtaagga	300
gaggccatat	ccaccgtata	ggagattttg	gctttgagcg	agtctttttc	agagtg	356

(2) INFORMATION FOR SEQ ID NO:850

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:850

tagaggatcc	cctggaaaaa	attccttttc	atTTTTgacc	gcctgtcata	ctgatcgcta	60
tgccTTTTta	gcaacgtttc	cttcacttgg	gcaaagaaat	tatatctgaa	gtgaacagaa	120
cagccttttc	gttttttaat	atagagcgag	cataatccga	cctcggccat	tctttcagaa	180
aaagcgaacc	gcaatccaga	aataatggaa	cgagaatctg	aaaaatctca	cgccacaaag	240
ttttcTTTTg	gtttgaaaa	ttttcctttc	cgacgcagga	aaaaaatatt	ttaccgcgac	300
tttttgagtc	ctcttaagta	aggtattttt	tttaacatac	ttgaccgaat	tatgcatcta	360
accatagtgt	agaatcctca	tctgtaggta	attgcaccga	acaaccgatt	tgtcagtaca	420
ttatgtctga	cgaaacgcgt	atTTtgactt	caaatgaaag	aaagattgaa	ccaaaccgta	480
cgctatTTtc	gcctatactc	ttcgcagtat	atgccggcct	ggtcatatct	ttcactcact	540
ccatatcatt	aatggcgtga	tcatcggtcc	ctcccacgta	cagtggggga	caacgaaagc	600
gatccgcagg	acaatccgca	ttcggattcg	gaattgatct	gtacaatcag	ctttcggcca	660
tattcacgac	ttatTTggat	acgccgccat	agacttgaaa	gaacctgtga	gggttgctcg	720
cgctgTTcct	ttctTTgcga	taatcttact	gctctcattt	cggagctaac	tccttccaat	780
catccagggc	tcctcccgtg	gcctgatcca	ttcttacctt	atttcggacg	atcattcatt	840
cggatgggat	tgcgcgcgct	tacaatgaga	tccgTTgcat	cgcacttgta	gatctgcctt	900
tctatgctga	tttatcaagg	ggatcgaatg	tcattccatg	ccgtgatgca	aggattttca	960
tccttcttaa	taccgatctt	tcgtgggata	gggagtgagg	cacactctcc	taacctcaaa	1020
aaccgactaa	aaggatcgga	ataaggatac	cgaacagaca	ctatatccat	atcaagccat	1080
caaaccaaaa	aataaaaatg	aacaactaaa	cattatcagc	ttcatcatgc	tttcctattc	1140
ttaggaacga	gcgcatcggc	tcagcaatcg	ggcggaccgt	tacagggtacc	gtagtggaca	1200
aaagctcaaa	agaacctatc	gcatagtaca	agtattcgtc	aaaaggaacc	actctcggaa	1260
cttccacgga	tgcacggaaa	ctactcgatc	aagggaatcc	cttcgggtaa	tcaaactatc	1320
gtacccgact	catgggttac	tccacttgcg	aagaaaaagt	acatatagaa	aaggTggTtc	1380
ccgccacgta	gacctctatc	tgaccgaaga	gattctctct	ccnatggggT	agtggTatct	1440
gccaatagaa	acgagacttt	ccgccgtcaa	caccctcggt	ggtaacggta	ctgtcgccgg	1500
aacttttctt	caaaaaccaat	ctaccaacct	gagtcaggga	cttaagttcc	agccccgtct	1560
gcgcgtgggg	acaactgtca	gaactgcggt	ttcaaccaag	ttcgtatcaa	tggactcaag	1620
gagcctattc	gcaaattctt	at				1642

(2) INFORMATION FOR SEQ ID NO:851

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 919 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...919

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:851

catcgaagtt	ctattttcat	caagcgtcct	tacatctctg	ttgtgggcat	attcagaaga	60
agattctcgg	agaactttcc	aaagggtgaac	gctccagtat	ggcttttatag	accgcattct	120
atttgtgatg	cctaattcttc	agcagaagcc	cgatggagca	gaaccgagct	tccagatgat	180
acagagaaac	gctgggaggt	attattcgac	ggctcataga	cttaccatgt	gccaaaggatg	240
aagaagggaa	gttacccttg	agattattcc	ctttgaagaa	gatgccaaag	ctcgctctat	300
atgtggcagg	aagagcatgc	tcgactatgc	gatactgagg	ctatgaagta	cttgtaggag	360
tctattgtaa	attagaaatc	tacatcatcc	gttttgtctc	attattcagt	tggctcgatg	420
ggtatgtggc	gaaagtgaac	atccgctata	gacctgacat	ctgtggagcg	agccatcact	480
cttaccgagt	tttccgccat	tcggcacagc	aagtacacgc	agagatcgca	ggtgttcagt	540
cactcagcaa	cagcaacaac	tccttgccga	gctaccagca	tcttttcaac	tgccgaagcc	600
ctgagtattg	cccaaaaaatt	ggggatgaaa	gaaagagttt	taaggatttt	ctcagtcgta	660
atatcggaca	cctctttgct	aaggaagaca	cggactttac	cataaactca	atatgtaacc	720
gagcgcactt	tctgcttatc	agcatttcgc	caccccttat	taaaccgaaa	gtgtacaaag	780
tgcaatagtg	tgccattcaa	atcaatttta	tcaatgagca	attatagatt	caattagaac	840
catacaaagg	tgtgcggaca	cggcatacct	gcccacgtg	cgacgtcctc	gatgcttcgc	900
tcgctatatt	gacacagag					919

(2) INFORMATION FOR SEQ ID NO:852

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 936 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...936

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:852

gaagacgatg	tgacggagga	ggaattgctg	gcctgcgtgc	atcgccctgat	caggatccga	60
cggtagatgg	cttcatcgta	cagctccccc	tcccgaagat	atcgacgagc	agaaaatcat	120
cgaagcagta	gacccgcgca	aggatgtgac	ggatttcatc	ccatcaacgt	aggccgtctg	180
agcatcgggt	tgcccgtttc	gtctcggcca	caccgaaggg	aatagtggaa	ctgcttcgtc	240
gctacatatc	cctaccagag	gcaagcattg	cgtagtattg	ggacgcagca	atatgtaggc	300
aagcccgtat	cgcagcttct	gtcccaaaag	ggagagccgg	gcgctgcacc	atcaccatct	360
gccatagccg	tacccttaac	atcaaagagg	tagtctgacg	gccgacatta	ttattgcagc	420
tttggggcag	cccgaattcc	tacagccgat	atggtaaagc	ccggagctgt	agtagtggac	480
gtaggtacca	gcttgtaccg	gactcgacac	gcaaaagcgg	tttccgtctg	acgggcgact	540
caaattcgat	gaagtggccc	ccaagtgtct	gtacatcact	cccgtaccgg	cggagtaggt	600
ccgatgacca	tcgtatcgct	catgtccaat	acccttcggc	aagtaaagga	ttgtaccggg	660
aaaccctcct	tcccttatct	gccaacacct	tatcgaagag	gcccgtcatc	aatatcgggt	720
cgctcgggat	gatgacggcc	tcttttctta	ttgacagtgt	gtcatcatgc	gcaaattgct	780
gcgtgcttgc	ggcattcggt	tcttagcgcc	ttgnacttta	cgcattctta	ccccctaaaa	840
tgggggtatgc	caaaaccgaa	ttttgacacg	ggctccctcc	tgcgatactt	tcaagaattc	900

gcttcgtatc ctttccgtta ggaggtaaag ggtact

936

(2) INFORMATION FOR SEQ ID NO:853

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3434 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3434

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:853

tgcaccaacg	gttcgccttc	gttggaaaaa	gaccttcgcg	atggccttga	tatggaaaagg	60
ctcatgactg	gaaagcgtga	acagcgtacc	tacgaaaagt	gtttcatacg	gctgagttcg	120
tccacggcat	gtagtaagaa	cgggctctcc	cagatgcccc	atacgccatc	gaaatcttca	180
tcgtgggcat	actctgcttg	ccgaaataac	gtttgtagcc	ggcttgtttg	acaaaagcat	240
cgaagccatt	gatacgtttg	gtgcaccatg	caagaaaatg	gattgataac	cgatcgcccc	300
agagccgtcc	ccaatccttc	aatctcattg	cccgaatagt	gagtgtaatg	aagtgtgagc	360
ggagggaagg	caacgagctt	aatatggacg	gctggcatcg	atactcttgc	gcccgttggc	420
aaaagcctgt	tcgaaaagg	acccttttgt	gaaatcgagt	cgaagcagg	tgatatcct	480
ttgtaatcgg	aatgtcttgg	ttcagccgtc	ctacgtattg	gcgagcaaag	ctttcgatgt	540
tatcaccatc	acgttgcgtc	cacgcaactg	actgaaacga	gctgtcgttc	cgtcgccaaa	600
tgatgaatgg	gattgaatac	ttgctccaac	tccttttgg	ggcataaaaa	cgcttttcct	660
ccaatccctg	tttgccaatg	gtacgatgat	gctgtagggc	gtgttcagta	ccaaagccct	720
atgttccact	ttgtcaccga	cagattggca	taactcattg	tcataggacg	ccacgacttg	780
gcaaactgcc	tnctcgtata	ccccatacga	taaatgcaat	agcggcaacg	aggctaccaa	840
cgtgaactgt	ataataatgt	aggctgtcct	tcgcttcggc	atgggtgcgt	ccggcttgac	900
ccgatgatat	agccatacca	tagcagcaac	gggactatag	ccagcaggct	catataccag	960
taattcagga	gaagatgcc	atcagtcctc	cgccctcatg	gctgaattca	gagaaaaccg	1020
tcgaggaatg	cgtttcaagg	tgtatggata	gtaaaatacaa	tcggccagac	ctgccgccgc	1080
cccaaagcat	ttggcacgaa	aaaggtccag	tcggtcagga	ttcgatagat	cgcttggcac	1140
gaaacctgaa	cggcagaaa	ctcaacagaa	taaaaaggca	ttcaaataca	aaacggaagc	1200
cgtgtcgaac	ctaagccctc	ccatcatgca	cgccatacct	gctcggcagt	catgtcggca	1260
aaaaagcgat	agttaagagg	tagaacagtc	cacgggcaat	accgaaaagg	aaataagcca	1320
atgcatacga	taggcataaa	cccaccagct	gttcgttcgt	atcgtccgct	taaaatattc	1380
atatctcttt	gtgtgtgttc	tattcggatt	ggaggcaggg	acgagggtaa	tgaatgattt	1440
cggtcacata	tccccccaat	tgagcctatt	catgattcgg	tgacacgatg	atcccgttgc	1500
accggcattg	gatctgatga	gtctgtgtct	gcgcgggatg	cggcgtccct	ataggccttg	1560
tccgtttgat	tcgcttgatc	aggttgcaa	attcctctgc	tgaggatacg	gagaagctcc	1620
gccgacatct	atcaattcac	gggcttcctt	gaatttctca	tatcgtgtcc	gaaaataacc	1680
ggtataccat	agactcggcg	ctcgggtgta	ttgtgatgcc	tttgccgaat	cctcctccga	1740
taaaagctac	ttgaccgtag	cgataatgga	ggataggaga	ccgaagctgt	ctacaatcag	1800
acaatccctgc	cggcaatatc	gctttccgta	gcttccgaaa	gtcgtatgaa	aggccgtcgt	1860
attgcgatat	gatctgaagc	aaatgttcct	tgctgatttc	gtgcggtgcc	atatgagttt	1920
gatcttggga	tttcgattga	agtagcgtac	gagtatctct	cgtcgggagg	ccaactgcta	1980
ccgccacaaa	tgaccaaacc	gtcttccgga	cggaagcagc	aaaacgctct	atcagcggaa	2040
gcgatttccg	agcttcatta	cggagatcac	ccggtcgaag	cgcgtatctc	ccgctacgga	2100
tacatgggcta	tcccatgctt	ttcaagtagc	aggcgtgaag	ccttgtcctg	aacaaaatgt	2160

gtgtaaagca	gtgtagcaaa	cgtttgtatg	ctcctccata	ccagcgaaaa	acagctgtga	2220
cggtcggaa	atggatgaaa	ccagataggt	aggttctgcc	tacgctccaa	ttctgtcagg	2280
aaacagggcc	agaagtcgta	tttatgaaaa	tagccatctc	aggcttgacc	agatccagaa	2340
acttacgcac	tcggcaaacg	atctgccggc	aaatacacga	tcacgtcggc	accttcgtaa	2400
tcttacgtac	ctcatatccc	gaggggctga	agaaggtaag	cacgatccta	agtccggata	2460
ttcgcttcgg	atgcgttcta	tcatcgggtc	cccctgctca	attcgcccaa	agaagctgca	2520
tgaaaaccata	tatagcgccc	gcccggcata	tgccctcacg	cagctgacgc	cacaccttcc	2580
atcgcccacg	aaccatctgc	gggctttggg	attgaacgga	acggcaagtt	tgatcagcga	2640
agaataacca	atccgatcag	gctgaaaagg	aatcgcatat	atttcgaaaa	aaattttgct	2700
gtcagcctaa	gacttcgatg	gcacgacgta	tgcgtccaac	ggtccttcac	gcccagacac	2760
ttccatgatg	tcgaagatat	gaggtccctt	gcttcgcccc	cgagtgccaa	ccgagtgcca	2820
ttcatgatat	tgccgaggtg	atgccattgg	tctcgatcca	attcttcaca	gtgggttcgg	2880
ttgcttcggc	tcaaacgatc	ggtgagagtc	cagcaattcg	gctagttcgc	ccaactgctt	2940
gccgtatctt	ctttccagcg	ttttttcact	gttttttcat	cataggatac	ggtgcgatga	3000
agaagaatcc	ggcttgctcc	catagctctc	cgataaaagt	acacgttcct	tgacgagggg	3060
gattacatga	gctgttttct	cgtcgggtgc	actactccat	tttcgcgaag	gatgggacgg	3120
aagagtttcg	ccaactcgca	ttgtccttac	gctggatata	ttgggtgatt	aaccagcgtc	3180
ctttccgtag	tcgaacttgg	ctccggcctt	gctgcatttt	tcgatgtcga	acagcggatc	3240
aattcgtcca	tgctcatgac	atcctgatca	ttgcccggtg	tcgccccaga	agcgcgagga	3300
agnttaccac	tgcttcgggc	agataacccg	cttcacgata	acctttggat	atatctcccg	3360
tttggggatc	tttccactcc	acggaaatac	cggaaatncc	aaacgatcgc	catcgcgttt	3420
gctcagctta	cgtt					3434

(2) INFORMATION FOR SEQ ID NO:854

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 420 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...420

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:854

cctggcgaat	tggtgaatgg	ccgtttcgag	tccggtaa	atggattcga	gtccgtctgc	60
cctgtcagat	acaaggtag	gaatttgtat	tccagcccta	atagatcaga	tcctcggccg	120
gaatgccact	gtcgagaagt	cccttgattc	ctctatcata	ccctcgtgca	tacgggcatg	180
gagcctgtcc	gttatctttt	gcgtcgggtg	tcgcgatcca	gatcgagacc	gataatcaga	240
ctgtcatagg	aggaaactcg	gtgctttcga	ccggattgtt	cttgatgtat	tcggattttc	300
gatagccctg	atagctcgct	gtgccgagtc	cacgtccgtc	ttatgtgcag	agggccgtat	360
gcagccagta	taagagtcag	ctctgtcaaa	cttttccttg	cagacgatca	cgaagcgtcg	
420						

(2) INFORMATION FOR SEQ ID NO:855

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 529 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:855

cctgcaaadc	gaggctctct	atatcaattt	gctcttccgt	caggaaatgc	tcgtacggca	60
gaaacacagt	tggcactgat	tcgcgagcaa	cgcaatcgac	ggccgaaatg	gttcgcgtag	120
gtaaatgggc	agagggttaag	ctcctcgcat	aaatgccag	atggccaagg	acgaacaact	180
tctcgtacaa	tatcgtcggg	ggaggagctg	gctcgtctgg	acttggggca	agccctcgaa	240
ctggacaccc	cgaaagcatt	gcagtcaagg	ctcccgacac	agacgttctc	gtagagaaaag	300
gttgggatct	ctccttgctc	ccgaagagat	ctatcgacg	gcttcggctt	gaaaccggca	360
ctgcattcga	gcgagctgca	aatagcttcg	gccgcgaagg	tctggcctcg	ctcgtgcggc	420
atacttccga	cgctcagcct	cctgccggat	acagcaacgg	ttactttccg	cgacctcggc	480
aaggagtatg	cgccatcaac	cccttcttct	ccgaacagtg	gaagaacaa		529

(2) INFORMATION FOR SEQ ID NO:856

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 571 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:856

agagaaagat	tcttatgaaa	agaccttgct	gatgtctgct	cgtaagcata	tattgtagcc	60
atcaggatat	tcgatcggcg	agaggccgat	ctgccaaagt	agggttgatg	cgctttcgcg	120
atgcagagac	agggcagact	cattggggga	taccgctgat	agctccgttc	ggaaagcgta	180
tgcggaatgcc	tatgaggacg	gcaagtagca	cttgccgttt	tgctcaaacg	atgtggtgta	240
gatacactga	gatacgtacg	gggcaggatt	tcgtgcagca	gcttcttata	ttattaaaaa	300
acgctcatga	gacactctct	tgccattcgc	tttgttcttt	ctgattttgc	atgctctttg	360
tctcttctct	tctgaaggcg	caagagcttt	cttcataggc	aaactcgacc	gtgcagagat	420
gcaaatagga	gagcaggcag	tatagatatt	actatccgca	cggcagattt	ggcgcatact	480
catctgcaaa	acctactgat	tcgacgatga	gtcggatcga	aattttggcc	tttggcattc	540
ggatacgttg	ttgtgaaaga	tccgatcgtg	g			571

(2) INFORMATION FOR SEQ ID NO:857

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 600 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...600

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:857

```
tatattgaaa atcggtgata atatccttaa catataggaa gttattcgac aatatctacc      60
atcttgacga atagttgatg tttccacgat tgaaatcagt acccgtcctc tgattttgta      120
ttaaaaatta agcaaccttt atccaagggtt ttgtactcaa gcctaactga ggtttgatgg      180
aatattctcc attttctagg atacgggttaa aaagctatct ttagcttctg ttttgagaag      240
cataatgcat caactgtttc attgttaagc atgcaaccat caatgtaaat tataaaaaact      300
caccattagc aatattaggg tgtatgcttt gatcataaag gtgctagcaa gattgttaga      360
ttgttcaact atatcatctt tgatcatcaa ancttggtga caaatctata tgacggattc      420
atgtctaaag actctataga acaaaactgac agaaaacatc aaacttgaat gtgtttttta      480
ctaattgttg ataaatccag aagcaaacga catatcatct gctttagaag aaaatgctaa      540
ccttcttctt ttaacttatt gccaaccttt gtactgtggc gattgttaga ctcctaatta      600
```

(2) INFORMATION FOR SEQ ID NO:858

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 534 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...534

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:858

```
gaaagcagca aaatgccata caggcatacg aagaattgct aagtctcgac ccttcaacga      60
```


agaagggtcac	tgcgggtattg	ctacactcat	gatcaaagag	gacgatcagc	cgaagcagaa	120
acatttctgc	gcgaagctat	cgaagagtgc	cggttcagcg	caatctgatt	ctgatgctcg	180
tcgaaatatt	ggagaaaaag	gacaaacgca	ggaagcagca	gaatggcgtg	ccaaactacc	240
ggaagagagg	tggaaagcga	agcggttaat	ttcaatgac	tttacaagg	taactctatt	300
aacttctttc	aaattaacac	ctgacctcga	tggcaaagaa	gtgtatgtgg	tctggaccgg	360
gcatacaccc	ggagtttatg	ataattggga	tgatgtcgag	cgcaaacaga	gggattcaat	420
aaagcccgt	acaaaagctt	tctaccgaaa	gcgatgccct	aagagcctat	gaagacggag	480
cagatgaatt	taccgcagaa	gcatacggat	ccactggtac	cgcaccggag	cana	534

(2) INFORMATION FOR SEQ ID NO:859

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 703 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...703

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:859

cgacccttt	gatgtcggac	aaacgtgctg	tcagttctgc	cagacggttg	caccgtacag	60
gtcgaggccg	tagaaggtaa	gacctgagc	aatcagttga	actcccagag	cccatgcttt	120
acgagcatcc	gtacctcttc	gactaagcct	ccatcgggcg	cgaccgatgc	cggccgggtga	180
taatcggtat	ggcgcatacg	aacagctgcg	atcgcagccc	tcggatattt	tcagataggc	240
ataatccgcg	gagtggtcag	tttgcgctg	ttctctgcct	cggcataata	agactcccca	300
aatgagaaat	gagttgcttc	cagtcgaatt	tgccgtagta	agctccaatt	cgggtatctc	360
cttcttcagg	tcttcccga	accgctcgct	cagcagccca	ttacgtacag	gctgccgata	420
cgtcgggect	tcttcgcctc	cccattctca	gaatgggtatt	gacagactcc	tcctgtgcat	480
cgcctatgaa	ccgcaggtat	tcaccaccac	gatctcgccg	cataccgaag	cgggatcgta	540
tgcacgggtat	agccgttgga	caggaactgg	cgcatacagca	cctcgctgcc	accagattct	600
tggagcaccc	aagcgtaatg	acgtctactc	tgttctctc	attcgccaaa	ggagagagtc	660
cacgaattcc	ttcttacgga	agatctcagg	tcgtcttatg	ccc		703

(2) INFORMATION FOR SEQ ID NO:860

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 697 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...697

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:860

tgctactgat	cgtttattgt	tattgatgat	cgaagtcgct	gatgcacagg	ccacaaaaac	60
ttatggtctc	aagatcaaca	atctatcaaa	gatagagatt	tcgcgcaagc	cgatggagaa	120
ccactaaagg	aattttcaca	tacttccaag	agaacagctt	attccatctc	ctccgaatag	180
tcctggaaca	ggaagtattg	taggggaagc	gcgtgatatg	gattgcctta	gctctctcgt	240
acaaagagct	ttcagagcat	ccatcccggg	gcctttcttc	gccgagacga	acagcagtca	300
ttcccagagt	tggccatcca	ggtctgttgc	agctcctcgg	cactatgttc	tcttttgttc	360
ggggagtaag	gtcgtcttcg	tctttgggtg	tgaagagaac	gcacgacatc	tggtgaagag	420
aagaagcatc	ggcttttctt	ccctgccgtt	atctccgcca	gagtcgtggt	caccacctct	480
atttgctctt	gaatgccgga	tgcgacatat	ccaccacgtg	caccaacaaa	tccgcctctg	540
cacctcatca	agtgtacttt	tgaaagattc	gaccaactgt	gtgggcagtt	gcggataaac	600
ccgacccgta	tcgctcagca	agaaaggcaa	attgtcttga	tcaccttgcg	caccgtcgta	660
tttcaacgtg	gcaaaacagc	ttggttcggc	gaagacc			697

(2) INFORMATION FOR SEQ ID NO:861

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1133 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1133

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:861

tgaaaaaggc	atccatccca	gcacgagata	gatgcctttc	cttttatcgt	ttgatccaat	60
tatttcgctc	ctttggtttt	acacgtatga	tatctgctct	accgtattag	cttccatcga	120
tgtgtagtat	ttttctttta	cctgctttta	gcagcgagag	ccttgctgta	ttgtttgagc	180
tcttcgtata	cgcgacggct	ttgatgagac	agcccgggtg	aatggcatcg	ttagaggctg	240
cggcccagct	ttctcaaaa	agcctacggc	ctcttcatat	tttttgagct	gtactaacag	300
tcaccgataa	gacgagtgat	agatgggtgct	accatatttt	cctggaggag	aatcccttca	360
gatgatcaat	ggctttctga	tattctccga	gggtgtagtag	caaagtcagg	cataggcttt	420
tgccagattg	gatgcacccg	accggagtat	tttttgatta	ctgtcaacaa	tcccatttcg	480
tttgaccgtg	tccatttaag	gctgcgctgt	ccaattcctg	aatgaatttg	tcttcggcag	540
gtataccttg	gcagcagctt	cacgagcttt	aggttcgtg	acgaaacgtt	gtaggcaaaa	600
atacctgcca	caatgataaa	aacgccaga	ataaccagcc	gattttggtc	atgttctttt	660
ctatgaactg	ctctgagcgt	gaaacccttc	tcctacgtgg	ttgtccggtt	gttgattttc	720
ttttttagcc	atatttgga	taattattta	tttcttttcg	gtcgcacaaa	ggtagcgttt	780
tggcgtgata	tacaaatgtc	ctgtccgaat	aaatatacga	tatgtaatgg	ttgtcgaaaa	840
cgtttcttct	cttcttgctt	ccaatatccg	atttacttgt	ctctcttgag	ccgtcaggta	900
gccgaaaaga	gagctattgc	caatccacta	accgctcttt	acggcatacc	gtatcagttc	960
ggctgcattg	gtgaatccca	tttgtgcaga	atattactac	cgggtgtgtt	ctaccgttcg	1020

gtaactaaag tgcatttttt cggctgnttc tttggcagaa tagccatcgc acagatatgg 1080
 actacttctt tctctcggtg ggtcaagctc gagaagtccg tctgctctg tgc 1133

(2) INFORMATION FOR SEQ ID NO:862

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 398 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...398

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:862

cgactctcga	ggatccccga	ggagacgacg	gacagggtgc	ccgcttcggg	ggggattgaa	60
ccctgctacg	atcctccaga	acgagtagct	agctgtctca	ttattttcca	tatactactg	120
cgattataag	gttatcgtag	caaagatcgc	gaggcaaaca	ggaatgatga	agatggggtt	180
cttagcggtt	cttagatgga	ttagaatgga	aaagccgtgt	atctgttcca	atttctggct	240
tgccgatgca	gatttatgtt	gactgcagaa	agaagactgt	agtaatgaat	gaattcttaa	300
aaatggaccg	cgctatgggg	aaggaaacca	gctacggcaa	aaaacaaagc	aataccatgc	360
caatggctgt	aatgctatat	cggacgagtg	gatataat			398

(2) INFORMATION FOR SEQ ID NO:863

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1362 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:863

ttgcaatagc	aacacataga	taagccgggg	tttgagaaga	agattcaaag	tcgccatagt	60
gagagattat	atattattct	ttatcagatc	aacgaatcaa	ttttgcgatt	attctctccc	120
gtcttggggg	ctttacagcc	ccagtctgaa	tgaggcagta	cgtagccgta	tgctttttga	180

tgctttcggt	ttggcaccgg	ggcagagtat	cagctcctcc	atagactcaa	agaggtcgtc	240
cgggagacgg	acacaccatg	tgtgcaacta	ttagggacga	ctcccttgag	cccaccatct	300
gccagacatt	ccaagagata	atataggcaa	tatactcaat	ggattgtcga	ggggacgctt	360
accgaacttc	tcctcataat	actcgataaa	gggattagta	gtgcctcacg	agcaaggagc	420
aggttatcgc	cttgccattc	aaagcataga	tgtttttata	tgccttttga	gccatcttga	480
gccattcgcc	gtgcttgaag	tattctctga	gatgatgcga	agctttctgt	cgagcatacg	540
atacgttgag	gaatagggat	aaactcccc	gtagtagtgt	catacctgtc	acaagataag	600
gagcttcgcc	acaagtaatt	tccatacgcg	tggagcaaca	tagtctttcc	atgtcttacc	660
ttcggggaat	gtaataggtt	cggtagtgc	atccaagtct	ttgtctcggg	ttgctcaata	720
ttaaacacat	ccttagacca	aaccaagcct	catcgatcag	attattctga	gcgttgcaaa	780
cccagagggg	gtgaatactt	ctgctttatc	cttggtgcg	ttggcttggt	cttcttgga	840
ttcagcactc	tgggctgtat	tacagtgtca	tgtcccttg	tatgctgtca	gtcgttaattg	900
gtgcatcgta	tttggtacgc	atctcccagt	gagtatagtc	atctgtagcc	caaaagatat	960
tcctctgagt	cgtatgggtca	agaggagtct	ttgcagaagt	ccttcggact	gacgcagtag	1020
ttcattctcc	taatgtcgac	ccccatcttc	atatcgctca	cgagtaacct	ctttgcattg	1080
acaagcagtg	gttgtcaa	tactgtatac	catatagaat	tgccatttgg	gcacagatta	1140
gaaataggca	cgacaaatct	gcccctactc	ttagccccgg	ttggggacat	caccaggaaa	1200
aagggcctcg	gtcttttctc	gtttttctaa	actcattaca	taagcaaagg	tactaagtta	1260
ggggcatact	aacgagggaa	atggatattt	ctttaccgag	tagatcaaag	tgcaacagat	1320
gggtaaacag	cagagatttc	cgggcattcg	ggttgggctt	tt		1362

(2) INFORMATION FOR SEQ ID NO:864

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 750 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...750

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:864

ccggctcgagt	ttcatgagaa	gaagatcgcc	gaagccggga	aagaccggag	gttttcgagg	60
agcgggtaaa	gaaaaacgaa	gacgggacat	acaaaaaccg	atacggatcg	atggagtggg	120
agacggcagg	gatatacaaa	caatcgccgc	aggctgaaag	agtacgaaga	gaaagcccgg	180
acaggcggag	agcacagccg	atcggcgaat	tatacggctt	tcaattatcc	gtcaagagcg	240
aagcccatg	aaagagagtt	tcgacttcgt	ggataaccgg	ttctttgtga	aaggtgtggc	300
agcatctatt	atacttacaa	caacggacat	ttggctgaag	acccaaactg	gcctgcatga	360
actttctgaa	tgccttgagg	aagattccca	gatcgctcag	agtcatcgga	aagaactggc	420
tgcgacacaa	gccaagatac	cacgttcgaa	acgatggttt	ctgccgtatg	gaagaaagag	480
gaggaattgc	ggagctgaag	agacaggccg	cggagctgga	tcgcaagatc	gccctttcgt	540
caaaaaagag	gacaaacgcg	aagtgaac	ggaagaaacg	gtcgtccga	tgcgacaatc	600
gcacgatgc	gcccttacgg	gaggagctaa	aaagggacgg	tcttccgagc	ggaatcatac	660
cgattggaaa	gaaatacggg	aggatgaaaa	atcaaacctt	gcataaagcc	tggaaggtgg	720
tgagagatac	agagaatacc	tgatactttc				750

(2) INFORMATION FOR SEQ ID NO:865

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 665 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...665

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:865

gggctccaat	tcctgtctgt	tcgatggtcg	ggaagatcaa	agccaacgtt	ccccactggg	60
ctatatcctc	ggagatgaag	ggagcggagc	cgtattggac	ggctgttcat	cggcagcctt	120
ctcaaggggc	agatgccgga	ggggctggcg	aagctttcct	gcaggagtat	ggcctgacgt	180
ctgccgatat	tatcgaagtg	tctatcgaaa	gcctttcccc	aatcgcttct	tggccggatt	240
ctccccctta	tcgcgagca	tttggacatt	ccggctgtat	atagccttgt	acagatagtt	300
tcgacgactt	tcttgtgcg	aacgtgctcc	gatacaatcg	tccgatctcc	ccctccactt	360
catcggtctt	gtagcctttc	attatcggga	aggttgagta	gcgtcatcaa	aaaaagaggc	420
ttaacgctcg	gatcggtact	gaaagtccga	tggagggact	tatacaatat	caccacaaca	480
atcatgtttg	gaagattacc	gaacaagcct	tccctgtacg	accgactgga	agaaaagtca	540
ccagagagat	cctcgaagac	atcaaccgcg	aggaccagga	aaagtggcga	agcccgtcaa	600
gcccggaacta	ttcccgatga	tccgaaccga	ctgggtccaac	aaatcatacc	acggcattgg	660
aagcc						665

(2) INFORMATION FOR SEQ ID NO:866

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 402 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...402

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:866

gtccaggcat	tcaatagcat	tttatcttta	tttaattgca	tcaatccact	ccattctctg	60
taaagtaacg	gtcattattg	atcatccatt	taccaacgtg	taggcaaaat	cagcatctaa	120
agaaagtcct	ttccaagaag	cacctaagag	aaaccacctg	tataggagg	agtaacagac	180
ttatcaattc	gtgtctcaag	tcagctgagt	actggcttgt	tgttaacttta	ttaccatccg	240

catctacttg accaggaaca taccacaact gcttaccggt ttttttgtcg attnagcata	300
ttcagctcat atagaacgaa ttgggggtacc caatttncca tatgtaccgg tattaggcaa	360
catgtactta ttgagaccna agaaaagctt ttttatttcc tg	402

(2) INFORMATION FOR SEQ ID NO:867

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 568 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...568

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:867

ggcttcgagc cggtccagct cctgcttctc cttgaaggct agctttcgcg acgctcggca	60
gcgtcgggttc ggggcttttc gctttctgcc ttacgtgtga gggggaagat tcgacgggtct	120
gcctttcggc ctcttcctgc tgtttgtttc gcggtactgg gtgtagttgc cggggaaatc	180
cttcacgatg ccgttccttc gaacgtgaag agatggttca ctacctgtc catgaagaag	240
cggctctgca gacgacgagt acgcatcctt tgaattcgct caggtagttc tccacacgtt	300
cagcgtgagg atatcgaggc cgttggtggg ctcgctcgaga atcggaaatt ggggttcttc	360
atcagcacgg tgcagaggta gagcctgcgc tgctgccacc gctcaacttg tggatcggcg	420
tatattgctt ctcgggcggg aaaggaactg cgtcagcaag gcccgatgcc cgagagggtg	480
gtaccatcct ttattccgaa tcacctcggc gatgtcctgc acggcttcna tgacgcgttg	540
gtttcgtcaa actgcatgcc cttctgac	568

(2) INFORMATION FOR SEQ ID NO:868

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 672 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...672

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:868 •

tagccattgc	tggtatccga	agcatgagggc	tggttaataa	gaccataaga	attttcgtcc	60
tgatatggta	atcgggtgtag	gaggctatgc	cagtggccaa	ccttacgcag	agcacattcc	120
ctcgggatcc	ccaccctcat	tcaagagaaa	acagctatgc	cggtgtaacg	aataaaactgc	180
tgagccgagg	agcgcaaaaa	tctgcgtggc	ttatcccga	atggataaat	tcttctctcc	240
tgaaagatcg	tttttaccgg	caatccgatt	cggcctgaaa	tagaattcgg	ccaccagcc	300
gctcggagtc	tcttcgcttt	ttcggcttcg	agcagtccga	atccctgtcg	tcttggtggt	360
cggaggtagc	ttgggtgccc	tgactattaa	cagagtatcg	ccgacaagct	cggcaaatgg	420
gcagaaagcg	gtgtacacct	ttatggcaaa	cgggaaagaa	ctatatagag	acagccagaa	480
aagcagtaga	aatcatcccg	ggttgaaatg	ctatgtcaat	gattttatca	ctcgaatggt	540
tatgcatact	gtgcagccga	cttggtagtg	tcacgagccg	gagcttgccc	atttcagagc	600
tttgcttgct	gggaaaacct	acgatactgg	ttccctccca	atgtggcaga	agaccatcaa	660
acaaagaatg	ct					672

(2) INFORMATION FOR SEQ ID NO:869

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2760 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2760

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:869

ttcggcctcg	tagaagagcg	tccgcgtctt	gagcgaatgc	tttccggcac	gtctttctgt	60
gccagctcat	agagagatcc	ccatgtgccc	aggtctgcca	gccgaagtcc	acgggcatga	120
ccaagacatt	gtccgccttc	tccatcagcc	aaagtcatg	gaaatgctcg	gacagtaggg	180
gaaagcctga	tcgatgaacg	ccgctcttca	ggtgtattga	agtgtgccaa	gccattttcg	240
agagagaggt	tacttccggc	agatgcttgc	ggaatgcggc	aaggatgctc	tccagttcca	300
tacgaacatt	ccactattcc	acaggaattc	tccactggcg	aggagatgct	tgccatctcg	360
gcattgggct	tctccgtaaa	ggttttcaca	cgataaaatc	accggctctt	tcttcagcca	420
tttggatata	tccatagccc	gctccggacg	ggatggacgg	atgccgagcg	tcacgagatg	480
ctcgtgatcg	ctacgaactc	caacgcttcc	gatgcagcac	gcacgaattc	gtcttcgcga	540
ggatcagatg	atccgaagga	gctacgatta	tgttggcttt	gggattgccg	cgtaaattgt	600
atagctggca	tatgcgatgc	aggggtgccg	attgagaggg	tcggttcgcg	caggatttga	660
tccggttcga	tctcaggaag	ctgttccgca	ccttgtccac	gtaaagttca	ttggtaacga	720
ccagaatggt	ttcccgggga	taaaccgtgc	gaaacgggtc	tatgtcatct	gcaggaggga	780
gcgtcgggtg	cgaagaagtc	gaggaactgt	ttgggatagg	attcacggct	gnaggccaaa	840
agcggcttcc	tattccccct	cccataatga	cgcaataatt	gttttcacag	ccatagtcgc	900
tattctatct	ttaagttctt	agacaaaact	atcaaaaata	taacgtcatg	tctcaagaaa	960
atcgtacttg	tggttcgtaa	taatttcata	ggccaatgga	ggattttttc	cctcctcaca	1020
tcgttttcgc	agtttggtgt	tttttctcta	ctttagcggg	cggaaaaatt	attcgcaaca	1080
tatttttctt	ctccccaaac	tctttgcttt	tttcgcaaat	gccaaaggtc	atcgaaaaat	1140
ctcattctaa	aattaccaat	aattatcacc	aatacagtat	gaaaagaagc	agacttttag	1200
gccgcatcgt	agtactatct	ctatggttgc	cacaattccg	gcttcggctg	tcagccaacc	1260
gcagatgacg	ccctgcagtc	gacacacacc	tccgatcggt	cgttcggcag	gggagctcag	1320
cagtagctga	cgaatggagt	gccgccatgc	cccaaaccac	atggagcagc	cagctgatgt	1380
cagttggtac	acggcgagac	gcacggaatt	cactctcacc	atgcggagca	gtttgcaggc	1440

ttggccaagc	tcgtcaacag	cggaaagtcc	tgaagggtgt	gaccatcaag	ctgggtaatg	1500
acgtggactt	ctcggctaac	gcttcgatga	ggtgatcggc	aaggataatg	acaacccctt	1560
ttccggcatt	tcgatggagg	caaccataca	ataacgggcg	tgatgatcag	cgatccctct	1620
tgggattcat	cggattcttc	ggacaaacca	acgaggccat	tattcgaata	caatcatccg	1680
caatgctacg	gtcgtagggt	cggccccggc	aggtgtctcg	tttgcaacat	ttacaacaag	1740
ggactcgtaa	gcaactgcca	tgctatgact	gtcgaatcgt	ttccgctcca	tacgaaacga	1800
gcttcggagg	cagggtgcag	ggtcttttgt	tggaggcctt	ttggatgaat	ccaagataga	1860
aattgctctg	ccactcgtgt	ggaagtctat	agccagagcc	aaagcgggtg	ttcatatccc	1920
aggcatacaa	tctgtgcgaa	gtaaagaatt	gcttcgtaac	gacagcaaga	taatcgcaga	1980
cgttgggttg	atcgggtggat	ttgtcggcaa	aactttgtct	tcttccccgg	aaccgagtct	2040
actttctcca	actgctatct	ctcaatgtgg	aagtcgtatc	gcttgacagt	ggtgatcaag	2100
ccgttcttga	gggtttgtcg	gtcagggtatc	agccaacttc	attgccaagc	actgctcgtg	2160
tcagccaaag	taacgggagg	aaaaaatccc	ggtgcttttg	tcggttgacg	gcagatgaat	2220
ccatgaactg	caaatacgac	ggttgcttct	acaaaacgaa	caaaacccgg	gtatggtcgg	2280
cataggaaaac	gggcgtcgaa	atactgccat	cgcagggtatg	ccggaagcgg	caatgaagac	2340
tgccgatatg	gcgccaagct	caatgcagat	caaaatcctg	ctccctggct	tcaggcaaac	2400
gcgcaaacaa	cggttggccg	tacctcaaag	acaacaaacc	ggtaataacc	ctctggccgc	2460
tcccatttcc	catgagatcc	gtatttgggc	tactgccggc	ggatattcat	tgcgggtgct	2520
cctgcgggca	catctgttca	ggtgtacgta	tgcaaggaca	tcggatttac	aatgctgccg	2580
tgcttgacga	tcatgacttg	cagttgcata	cgggtgtatac	gttgtagcag	ccggtgacag	2640
cacagcaaag	tgatcgttcc	ctaagagaga	ggtcgatagg	aaaaagttgc	atcctcatga	2700
gcgatttggt	tgccgcaagt	cgtttgtgca	ggattctttt	aatgttggtg	ccgggggatcc	

2760

(2) INFORMATION FOR SEQ ID NO:870

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:870

agagcaagtt	ttccatctcg	ctgcctcgtc	tgcgtcctgc	cacgggcggt	gggagcctaa	60
agatcctatt	gacgatgtcg	gtatggtaca	gcttattatg	ccttcctgtc	gttgataag	120
gatgtcgaga	tcagcctgtc	cacacggaga	gtcgtgagtt	tcgtgaccac	gtgatgccgc	180
tcggtatcac	ctcggtagtg	ccggcagcaa	gaccgaaccc	ggaggatatg	ccgaagagaa	240
tgccgtctgg	agcaattcgc	catcaacgat	gcccgcagtc	cggccgaaat	ggctccgatc	300
ttcgccgact	tggctacgag	ccggtttgga	aagactggga	tgcttcatgt	aacagaagat	360
tcttaccgta	acgcctcgcg	tccgaagcga	aggatcttca	taagaataaa	ggcttgctct	420
ccggtcgagg	aaagcagcct	tgtccgtttt	tggttttatc	gtttgaatcc	ttacaagcga	480
atacctaagc	tacgtggaaa	gaggtattct	ttcagcgtag	cctncaagtt	tttagtctcg	540
gtttaatggc	tttacc					556

(2) INFORMATION FOR SEQ ID NO:871

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1368 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1368

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:871

acttccgttt	tatccagaat	gttcttaatc	ctcggatcgg	attcgtagtc	gacagcagat	60
gttctatgag	tcggagcagn	accacatatc	cggtcgttcg	tctccgtgca	tcgtagaagt	120
atagagcacg	cgaggctttt	tccctgtttg	gcagaggacg	tcagcttgca	aatcatcagt	180
ttacgatcct	ttacggcttg	ccaatgacgg	aagtagtaca	aagtgatgga	tactttgttt	240
ggaaccttcc	atcatgctga	tataggcttc	ataggtgggg	taagcattcc	attctatttt	300
tctcctgagc	ggtagtcgaa	catctcgaca	gcgcgctgca	tggtggagga	gtcaagaatg	360
taggcttgag	cccatagcgc	aggaatgcct	cgactcctct	tcgctggcat	aggcaatggc	420
ttcattgggt	acgggggtcaa	atcgtcgtatg	gacatgatca	gagccagctc	ttgtagaacg	480
gccctatcag	cactttgaaat	gagaagtagg	cctcgccccg	ttcgtcaaag	ttgaaataac	540
tttggcctgt	tgtgcctgca	tgctgccgat	gaaagtcagc	aaagcaacaa	aatgccaaga	600
agcaaaaaaat	tctttttctt	cataaatagg	ataattagtt	tgttattgga	ttcttgcagt	660
atccttttgc	gagaaaaaagg	tgctcgtttt	tgcataacgg	tatggcagtg	ggagcatatt	720
tttcgggcta	aatgtctcgc	aaagataaaa	atatttcctat	gccattatct	ttttgagcct	780
aaaagtcaat	tgcatattcc	acttagttga	tagtttcagg	atgggatgtt	cccaaaggag	840
attgttgcag	gggagtttca	ttgagctctt	ttgctgcaga	gcgattctta	gtgtcttcgg	900
gaaagggtcaa	accttcggta	tatggacaca	gaagcaaaca	gaaatttcat	caagtttcca	960
ttagagaagt	actcctttcc	cgtcaaatca	atgcttgtag	cgataggcga	gaaataagga	1020
atgattgtcg	ctgattcttg	cttcctgcac	gatgcaggac	gcgattgtca	gctgattctg	1080
cttcctgcac	gatgcaggac	gcaattgtca	gctgattctg	ctcccgtaat	gcgctaacta	1140
tcagctatatt	gcaactatatt	tataggactt	tcattgagtc	ttttgccgca	gagttgattc	1200
ttaagtgttt	ttcagattac	ttgagtttgc	agagagatcg	catgaagctc	tcctttcttc	1260
gtcaaatcaa	tgcattatct	gncttgatca	atatgagggg	ggaagggtta	ttgtataacg	1320
gtccaaaagt	gcctttttccg	gatcaaagtc	caaataaaaa	ccttgtag		1368

(2) INFORMATION FOR SEQ ID NO:872

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 589 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...589

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:872

tacacgtgtc	aagcccgtgc	aactntccgc	tttgctcgta	acgatacacg	tcccgaactc	60
ggcccaaacg	aatcggtaga	tcgcgatagg	aatgtggatg	atcntgaata	tctcgcagtg	120
gtgagggcat	tcattggctt	tagcatgact	cttctccttc	ctgcggcgta	ttgatcggac	180
ggaaagaatc	ctgtcctatt	tggcatagtg	cccggagggtg	atgtagagat	tcttattgcc	240
gatatcggcg	tgattacctg	ttggtagcca	aagtgccttct	gtatctgctt	cagaagtctt	300
ccaaacgcaa	acggagctgt	gtgcctcgcg	gtagccaaag	cggaaagccgg	cacctacatt	360
ttgggagaaa	gcgaagagtt	cgagctcctt	acgatctttc	gatggtcgcg	cttcttagcc	420
tcttccaaaa	gctcgagata	tcatccaaca	tctttttctt	tgggaaagag	attccataga	480
ttcgtgtcag	tgttttctct	tttcgtcgcc	gcgccagtaa	gctccggcta	cacttaaaac	540
ttgatcgctt	taatgtaacc	ggtattgggt	aagtgaggac	cgcgacaag		589

(2) INFORMATION FOR SEQ ID NO:873

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1123 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1123

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:873

aatgatccgg	aagccgatga	agcgcgtcctt	tacggcgcaa	tcccgatatg	caggcggtcat	60
tcatttttgc	tgaagtaag	cccgtaggcg	aatcggtagag	aagccgcctt	tgtactacag	120
gancaatatc	ctctcactgc	tgaatatctc	gaactgatgg	agcgattcgg	cactcgtggg	180
atcgtatttt	cctcatctgt	acgggtgtacg	gacagccgga	ggtattgccc	gtaacggaag	240
aggctcgata	caggaagctc	tctctcccta	tggcaatacg	aagcaaatca	acgagagatt	300
atccgcgatg	ctatccatgc	cggagcaggg	tacaaggcta	tactctgcgc	tacttcaatc	360
cgatcggggc	acacccccacg	gcgcataatcg	gaagcttcct	aacggagtgc	cacagaatct	420
gatcccttat	ttgactcaaa	cgcagcaggc	atcagagccg	aactgagcgt	cttcggcgat	480
gactacgaca	gcccgcacggc	tcttgatatcc	gggactatat	ctatgtgggtg	gatttggcca	540
agcgcatgtg	gctgccatcg	aacggatgct	gaatgaagag	aaagcgagga	ttcgctcgaa	600
gtctttaata	taggtacggg	taggggcgtg	agcgtgcgga	gcttatccgt	accttcgaac	660
gggtgacagg	cgttgctgtt	cctcatggat	agtaggaagg	cgcgaaggcg	atatcgaaca	720
ggatggggc	gagccaagaa	agccaatgag	gtgttgggtt	ggaaagcctt	ggagtcgttg	780
gaagcacact	gctgagtcca	tggcgttggc	agcaacgctt	gtcggagaag	taaccgcagc	840
ccattaacgc	acccgatacc	ctatcttctg	gcagatggac	atctatcgac	caaaatcact	900
tacctgaccg	gcgtagggcc	gaagcggggc	gagtactgaa	ggaggaaata	gaagtacgta	960
cctatctgga	tcttctccat	attttccctt	tcgctatgtc	gataggagtc	gattttatgc	1020
catacgggaa	tacgctccga	tatgccctat	atccagcttg	cgcgggtgtcc	ttcgcaactc	1080
tccgaggtgg	gcgaaggacg	gcgcaagcgg	ctgacggcta	ctt		1123

(2) INFORMATION FOR SEQ ID NO:874

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 579 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...579

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:874

ggttcctccc	caccatctat	aaggcgcgcc	agccagtaaa	tagccgcgtg	ggatcactgc	60
cccgaatact	tttgataaaag	gcggatgcta	tatcataggg	agttcgcctc	ccttgtcgaa	120
agcagcgggg	ttttcttgca	agcgtctgct	atcttttcgt	tggtaatgac	gagccgggtct	180
tccacttcgc	ttgtggcaga	aggctcgagga	tgttcagcag	ctttcgtgca	tcgcctccgg	240
cataggaagc	agagcttccg	tctcctccag	tacaggatgc	ttggcagcca	gcagtcgtcc	300
cgatcgatag	ccctgtgtgc	caagtagcag	cagatcctca	tcatttgggg	tttgagcaca	360
tagacctgac	agcgcgatag	gagcggacgt	atacttcnaa	actcggattt	tcggtcgtgg	420
caccgatcaa	gcgtcactat	tctcgctcta	cggctgccan	aagtgaatcc	tgctgactct	480
tgctgaaacg	tgtatctcgt	cgatgaagag	gatggcgcgt	cctcctttgt	cgaacaggag	540
ccacgatgga	ttcgaatgctg	gctattactt	cccgaacttc			579

(2) INFORMATION FOR SEQ ID NO:875

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 581 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...581

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:875

ggctctaaac	ctgcaaaccg	ctttcgagca	gataagacct	ccggacacat	acagaaatca	60
gcgtgatgca	atggatgata	tcttctatgg	aagcagcact	gtgaatggta	gcacaagaga	120
ataatctttg	ccgagacagc	gaaaatcatc	tcggtgcgat	tatctttcga	ttccaatctg	180

cacacataca	aatgagttcg	ggcttcgtcc	ggctccatga	aactccggct	cttgccaaac	240
cgcagaagag	atagcagcag	ctatctcttc	gcagtcgccg	ttatagacaa	tagttgacaa	300
tggagaaaaca	agcggagctt	ttcctccagt	ttcgttttta	tatcgggaag	ttctcctgat	360
gagcacctcc	tatattcgta	atgataccat	acaggggcat	attatgctct	ccaaacgttc	420
catttccccc	atttgcgata	tccggcctca	aatataccga	gagtgtgttc	ctccgccatt	480
gccatacgga	aggggtactc	ctatctgcga	gttatagctt	cggggcgagc	ggacaatgca	540
tagtccttgc	gcaataactg	ataaaggaac	tctttgacga	t		581

(2) INFORMATION FOR SEQ ID NO:876

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1029 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1029

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:876

ggatgatttg	gccaaggctt	atggcgatca	ccaggtgttt	tccggagctc	atacaccatc	60
gaaaagaggcg	aaaagggtggc	tttcgtaggc	aaaaacgggc	cggcaaaagt	accatgggtca	120
agtgtatcat	gggagagctg	acagactcac	cggcaagctc	gaactggggc	acaacgtgca	180
gctgggctac	tttgccaaaa	cgaagcccaa	gagctaagag	gggatctcac	ggtattcgac	240
acgatgaccg	tgaggccgtg	ggcgacatcc	gtctgcgcct	gaacgatttg	ctcgggcttt	300
tctcttcggg	ggcgaagcat	cggaaaagaa	agtaagtgtc	ctgggtggagg	agaacgagca	360
cgattggcta	ttatcaggct	tttgctacag	ccgctaactt	ccttattctc	gatgagccga	420
ccaatcacct	cgatatgcgc	tgaaggatgt	actgaaagag	gcgatcaaga	acttcgatgg	480
gactgtcatc	tagtatctca	cgaccgtgag	ttcctcgatg	ggcttgctcag	caagggtgtag	540
aatttgcaga	tggacagggtg	aacgaacacc	tcggagggtat	atacgacttc	tccggacccg	600
ccgatgacag	acgctgacag	agctggagcg	aaccactcga	tcgaaacaaa	aaccacacgg	660
gaggctatac	ctgaaacgga	agccaagcgg	actaccgtcg	gcaaaaggag	gtagccaaac	720
agctgcgcac	gttgggcgaa	ccgtagcaac	ctgcgaggag	cggatcggaa	aattggagtc	780
ggaatacagg	caatagagat	gctactgcaa	gatccgaaac	atgcgactga	cgcaatctgt	840
tcgagcgata	cgccggcatg	aaacaagaac	tcgaaaaggc	caggaggact	gggaacaggc	900
ttccgaaagct	ttatccggaag	cccaaggata	actcaacctc	ccccctctct	tctctcctcc	960
tttaccaaga	gaccatctca	caccaatcta	ttagaagctg	agacaacctt	tcgcatccg	1020
tccgaaagc						1029

(2) INFORMATION FOR SEQ ID NO:877

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 545 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...545

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:877

tgaacaaaga	agctctgtcc	tatcgtttgg	cgggcaagga	cattgcagag	tgaatgcaat	60
ggacatcaag	actcttattg	aatgggtaga	ttctctgggtg	aacatctgtt	ggatacgcaa	120
cgggctattt	ctatagaaat	actgaaaaga	tacggacacg	cttgggggtt	cttaaagatg	180
tggggttgga	gtacttacga	tgaaccgagc	tgcagcatcc	ttatccggag	gagaaagcca	240
gcgtatcggt	tggctacgca	gacgaggagc	aaactgggtg	aggctcttga	catatggatg	300
aaccgagtat	cggctcttcac	caaagggaca	atcttcgggt	gatcattcgc	ttcaggattt	360
gcgtgatata	ggcaatacag	tggtagtggg	gggcatgata	aggatatgat	gctgcacgcc	420
gactatgtaa	tagacttagg	acacgagccg	gcagacatgg	tggtgaagtg	gtgtttgcag	480
gtagtccgga	gagatgggtc	aggctaatac	cctgactgcc	gattatataa	gtggacgaag	540
cgtat						545

(2) INFORMATION FOR SEQ ID NO:878

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1088 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1088

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:878

gtcagagttgc	atagcgaact	cggcgggtgc	cttgtctttt	ggaatgagtt	gggaacctta	60
tttcggacta	ttcatcatag	gagaaaatgc	tcttttgtcg	aaaccggatt	ggcatacggt	120
agataagaca	aagataatag	gagagtgggg	gtaaggagca	taaattggatg	aatatacgcg	180
ttcattatta	agccgtttta	attcggatga	taagtgttag	gatagagata	tttagcttcg	240
ttgaatcggt	tgtgtttttg	caaattgtagc	caattcctgc	gacttccaag	aggctgatga	300
actatgtgtg	tcattttgtg	ctgtcctgtc	gattgtcat	aagagggcag	gggatggccg	360
ttgctcgaca	tggaaataag	agagctttgc	tgatgctaca	taagggtgtc	tatttggtac	420
gatgtacggg	gataggcttt	gttttttccg	taagtttgta	ttgatattgt	ttcttgcata	480
cacattcaaa	ctattgacag	catggcaagc	gaaagaaaac	tgaaaaagca	gataaccggg	540
ccatttccga	agtctttact	gatgcattcc	tgctcaaact	ctttgtgaag	aggaaaaaaa	600
cgcagaggtg	gaaactatcc	tcaatcgtat	tctccaattc	aagataccac	cattgccaag	660
attcgttgca	acgacggtaa	gcacaacctg	cactcgtaaa	gaaatattat	cgccggctcg	720
tggatgattt	caaggagagc	tgtccgagat	cgtgaagagt	atttcggcgt	gtgcgtctga	780
taatgatttg	tcacttacgt	gcattaagca	gaaatagcgt	aacatataga	ggtttttgaa	840

gtttttctca	cgattgttgc	tcaggatgat	gggctggaaa	gcctcgtccc	atctgcaa	900
ccgctccaaa	gcgtcatttg	cgtggctcct	ctaccagcaa	ttacgacttt	ttgctgggca	960
aactctacta	ttggctctatc	gtcggaaagc	cggcttcctg	atgaaaaagg	aatggttttt	1020
cttccctttg	gaccgatctt	cagggctatg	ggaggtatcc	cgatcgatcg	ctcgaagcag	1080
gttccact						1088

(2) INFORMATION FOR SEQ ID NO:879

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1856 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1856

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:879

agccggtatc	gtagtgaaga	aaggattgct	gtaccgcaag	agaaatggta	cataaccctg	60
ttcgagcaat	tctatggcat	gccatttggt	gtagaactcc	ctatcggctc	catacgtacg	120
accgtgagca	ctttggctct	cacccctccc	cttcaagagc	agagctgaga	gccaagctgt	180
tgattaccgt	ggccagatac	ccatctgatc	tcctttgaca	cggtcgaatc	ccttggcggc	240
accgccactc	cgcggaagat	attgcctcct	ccgatgacga	tgccgatctg	tacgccatgg	300
cacaagcctc	cttgatgtcc	gaagcataat	cggccaaccg	attgggtcga	tgccgtattg	360
ctgagcacc	atgagcgact	caccgctcag	ttgagcagca	ctcgtttata	tgcagtcatt	420
attcttttct	atcagtttgt	tcaaagaaaa	gcatattttc	cataccccat	tcgtcgatag	480
acgctgtcga	tggctgtttt	cactccagac	gagagagcat	ctcttcgccg	agagcacgct	540
tttccggatg	tgtccacca	cctcgacgat	gaagggtatg	ctttcgatc	gcctcgcacc	600
tcacgaaat	cgcggtgttt	catctccctt	accaggttat	tccgaagcct	acctgactgt	660
gcatttgaa	ttccttcttg	gcatcccata	gagcatctca	tccaagcgaa	tcaccgaacg	720
catccatgta	tgcacagttc	ggctactttg	gatcgagtga	gatcctcggg	gttcagttcg	780
taccttcgag	cagagcgttg	tatgcccgag	accattcata	gtcgtagtat	cggtatgaat	840
ttccttcac	cgtcattca	cctccgcaag	gcttttgatc	ttccttcttt	gatcaaggag	900
gcaaggcggg	ggatctgttg	ttgtggagcg	acatgccaca	gatgtccacc	cagctgccgt	960
ctccctcatt	gtgagtcggc	tgagagcact	cagcacctcc	tcacccgtac	ggcaaggaca	1020
atcttcaagc	gtttgatgat	ggaattgccg	aaaaacttgt	tcagccccc	ctcatagaca	1080
tcagccccct	gtccaaggca	gaagaacgta	tgcgcatatc	atgatagcat	aggtttgtcc	1140
ctcactgccc	agtatcttgc	gtagcttttt	cagcttcgac	tgccgcgcac	catcttgccg	1200
gcagtgaag	gactcaagag	attgagttga	tattgtccag	caaataccgga	tctttacgct	1260
tatctctcgc	cggcacttct	tggcgtcacg	aatcgtcccc	acactgcgda	gatggatacc	1320
cggaccaa	acgattcggt	acggtcctct	atgatataag	agaaggggaa	ggcgagctgt	1380
caatatgggtg	tacgtgtcga	cccataccca	acgtgaaaag	gcctattctg	gatggccaaa	1440
ggatataaga	gtcgtctcgt	gtcttcgagc	gcgctccacg	atgccctgat	ggatggggcc	1500
gagctttag	agggtgattgt	ctggtttagag	ccgctgccgg	cattgaggaa	agagtataga	1560
ccggcaatag	caggctcgac	ttgtgcatcg	acacggtata	tggcccggca	aagacggaca	1620
ggcctcgccg	ttttcgctt	ggcagttggc	aaagaaaagc	gaatcagtc	agagaaaagg	1680
tgccccaa	gagtaccctg	ccctacaaaa	cagtggaaac	ggtagcacca	tccgtaacgc	1740
tgctgcccga	acagagaatg	aaatgctggca	gacgacattg	tagcctaccg	acacgggggc	1800
ctctttcttg	ctatgatact	gccgttgacg	agatgcgagg	caccgggtga	tctcgg	1856

(2) INFORMATION FOR SEQ ID NO:880

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1025 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1025

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:880

ccttagctgt	cccgctcgagc	ttgggtcacgg	caagggcatt	cacttcagtg	ctgcggtgaa	60
ctgccttgcc	tggtcgaaaag	cattctgacc	ggtggatcgt	ccaataccaa	taaaatctca	120
tgcgagcgt	cgggcactac	cttctgtca	cacgcttgat	cttcgtcagc	tcgttcatca	180
gattgacctt	attgtgagac	gtccggctgt	atcgatgac	acgacatcga	cgccgtagc	240
cacggcgaac	tgactgtgtc	ataagccacc	gaagccggat	cgctacccat	ctgcgcttga	300
tgataggcac	tcctactcgc	tcggaccaga	tctccaactg	ctcacggccg	cagcacggaa	360
ggatcgggca	gccccgagca	cgacgctctt	gcggcctgac	gaaagcgatg	tgccagcttg	420
ccgatggtag	tggtcttgcc	tcgccgttta	cgcccactac	catgatcaca	taaggtttg	480
taccggagg	aggtcgaagc	tgtegccatc	ggccgatccg	ttctccgtga	gcagcgagg	540
atctcttgac	ggaggatagt	cgtcagctcg	gaggtggaaa	catatttgcg	cgagccactc	600
gttctcttat	acgtttgatg	atcttcaatg	tggtatcaca	cccacatccg	aagtcaccag	660
cacgttttcc	aattcgtcca	agacctatcg	tccactttgc	tcttaccggc	tacggcacgg	720
tgatcttg	cgaatcggtt	tctttgggtc	tggaacaggcc	ttcgtccaaa	gtctcttttt	780
tcttttcgag	aataatccga	ataatcccat	atcgatatata	ctgttatatc	tctccttagt	840
tcattctgtt	cttgtaatcc	tcataatcga	accggcgcaa	cactctttct	tcccgtcggg	900
gcgacagcgt	acgatgtccg	gatggcggtg	acgttgaaca	tgctgtcttc	accgcggtag	960
tgagcatgt	ctcgaatatc	gtcatcgcca	ctgcacgcga	tcgaaactca	gtcaccgatg	1020
aagcg						1025

(2) INFORMATION FOR SEQ ID NO:881

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 490 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...490

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:881

```
ggggatctcg ttctatactt ttcagacgat gagttacatt atcgacatta tcgaggtcag      60
gtgcagcctc taaaacgttg gatagattac gtcttctagt ctctttcttt ccccgctgg      120
tagccggccc catcgtccgc gcccagagttt cattccgcag atataccgcc gtccggtggt      180
ggaagggagg gaatatccga agccctgatg ttgataatgg gaggtctctt caagaaagcg      240
atcattcgga ctatatcagc ctgaactttg tggatcgcg gttcgatgct ccaagcttta      300
caccggattg gagaacctta tgggggtgta tggctacgcc ctaagatcta ttgcgacttt      360
tccggttatt ccgacatggc tatcggtata gcctgggtgct cggcttccgc ttcaatatca      420
atttcgattc acctatcag tggccaatat caccgagttc tggcgcagggt ggcatatctc      480
tctttcgtca
```

(2) INFORMATION FOR SEQ ID NO:882

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 648 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...648

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:882

```
gcaaggagtt cggcttcggc tttcgctatg gaatcctgcc gagctgcttt atcgcagcct      60
tacgctgcgc ttctatttcc tgcggatcgg gacgattggc catgaaaacc caaagatcac      120
cagtccgata agaactaaac ctataacgta tttttatcca tatattttcg ttgcgtaggg      180
attcttcggc accgactcgg caccctatc ttgttgcttg ttcgctacgg tatgtcagag      240
gggagaaaaa tttcacaccc ccccaaagaa ccgacaggca aagcgattat tcttatcttt      300
ttttctcggt ttgattgctt cacgaatgaa agccatgaac aagggttggg attgaccacc      360
gtactattgt attcgggatg gaactgtacc ccacgaacca gcggcaggca ggcacttcca      420
cggtttctac caagcccgtc tcggattctc gccacacat tgcataccgg ctttttcgaa      480
agcttcgcga actggctggt gaattcgaag cgatggcgat ggcgttcgcg cacgaattct      540
tgccataggc agcagccaat ttcgatcctt tgcgcagagc acagtcgagc gcccaaacgc      600
atggaaccgc catatccgta accgctctgt cgtcatcggt cgtgacct
```

(2) INFORMATION FOR SEQ ID NO:883

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 386 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...386

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:883

atagggtgag	cttatcgag	gcgttcggct	gcccgtatca	tggtttcatc	gctcctatgc	60
cacgaatggc	cagatagtgc	aggatgatgg	agactatcgc	atgcagagcc	aaaaacggaa	120
tccgaactcc	aagttctcag	ccgagcaatc	tgccaaatct	gcatccccag	atagataaga	180
aaacctatcg	tgacgagata	ttgaagatac	atagtctgat	ctgcaagatt	cgctttttgt	240
agaggagatg	gtagcaaacg	agatcagtag	gataatggca	tcaagagcaa	aaagcccca	300
gtggacttga	ccagcgcat	ggtagccgg	gcatatagtc	ctatatggtc	atcgcgtagc	360
cttggccttc	cggccttctc	aaaagc				386

(2) INFORMATION FOR SEQ ID NO:884

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2415 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2415

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:884

tggtttccac	ttgactccaa	gcgtattgac	ggcttcctgc	ttgtccacga	gccgttgtat	60
ttgagcacac	cccagctaaa	tagcaggaca	aaaactgcat	aatggcaatg	atgattactg	120
ttcctttttt	catattcatt	ctatgttacg	ttactattag	gtttatctga	atgtactact	180
tacgacgtct	gacaggggtt	tgtctttctt	gaccgaccag	ccgaaatagc	cgagaaagtc	240
cccaacgaga	agtattcgcc	atgcgaatat	gccagcaggt	ttgctttctc	catcacgaaag	300
aacctgtctc	cgggttgata	tattgttcgt	cggcacggat	attaccacat	cggccataaa	360
catgtcatgg	ctaccgagtg	gaatgacctg	tctaccttgc	actctatgct	gaccggcgat	420
tccggccacca	aaggagcttt	gtcagcttgg	ccggctccac	ggtaaggcct	gtctcggcaa	480
acttgtcata	tccttgccc	aacggacacc	gcaccagtcc	gtctgtctgg	ccatgccgac	540
gtagtcagg	tcaaaccgaa	ctcgccactc	tctttgatga	gagcatagag	tgacgctccg	600
ggcgaatact	gacatagcac	ataggcggct	ggctgcaatc	gtccccaccc	aactggccgt	660
aagcaaatta	taatcctccg	gccggggcca	caactcacca	atatggccgg	tagcggatag	720
ataagtgtgc	cgggttccaa	tcttgtctca	ttgtttcatt	cttagaaaac	ttacgcaaac	780
tatacaactc	gatgcgggtc	ccggctagtt	ttcgctcgca	gtagtcgcat	cgaggggtgca	840
ctgctcggca	tctatcacac	ggaatcgggt	ttgcatcggt	tcttgttcgt	aatacacttc	900
ggattcggac	aacggacgag	acccacaatc	tgtgtggtag	ttccacctga	cgtttttcta	960
caacttcata	gtcccgaata	tgttcaggcg	cacattcggg	gcaataagag	cgatgcgggt	1020

caattcctct	cttcgaaagt	cttgtcctct	atcttgataa	ctcctttcga	accatggccc	1080
gactgcgcaa	attgttgccg	atggtgatcc	gcttgccaa	atcatccgtt	gcaggagagt	1140
agccaccttg	aacagtttcg	tgggggggat	atggtcatca	cgatgccgtt	tctaatecgc	1200
gcgacgagca	tttcttcctt	tttcatacaa	tatctgctta	gtttgcaacg	tctatgccga	1260
gcacttcaca	aatgtggact	gcctcgtata	aagcccgttc	agtgccttgcc	ggataaaagta	1320
ggcttgggat	tgcatccac	atcataggca	atctccccc	cacgaggtag	cgatgcagta	1380
cgcgcagatt	cggacggctg	tcggacagca	tagcgttggt	cgcacataga	catctttgac	1440
ccgttcatat	tcctccagat	ccgtaaaccg	tcacgttgta	ctcgtgtcat	gtagagaatg	1500
tcgcagttgt	tgatcacctt	tcgtcgaaat	gtttggtttc	cgtataaggc	agatcatgct	1560
ctcgacaaac	tgcttgatt	cttcgggaag	agacagctct	tcggggagcaa	cgaagataaa	1620
cgagggcgga	agtgcgacat	accctctatc	agagaatgga	tagtactcca	tacttgagat	1680
cccctaccat	agcgatagtc	ctgtcataca	gcgtgcctgt	gttttgcgaa	tggaatagag	1740
atccaataaa	gtctgtgaag	gatgtgggtg	gctccatcgc	cggcgttgac	taccggcaca	1800
cggcttacct	ccgagcataa	cgagccgccc	cttcagata	gtggcgcata	ataatcagat	1860
cgcatagttg	cccaccatgg	aaatggtatc	cttgagcgat	tcgcctttcg	tgagctggag	1920
gtggatgcat	ccgaaaaacc	gatgatacgg	cctccgaggc	gttcacagcc	gtctcaaaac	1980
tcaggcgcg	acgggtagaa	ngctcaaaga	aagagtggct	acgaccttac	cctccaaaag	2040
gtgccgattc	ggattctttc	gaatagctct	gcccgatcga	gaatgcnaag	aatgtcctcg	2100
gncgaacctg	gtcaatagat	acnatatgct	tcattcttta	aggagtataa	ttgattaatg	2160
atatggacgg	aagcaaagct	cacttcaaag	cgaaagaagc	cttaacgtta	tgcttgccgt	2220
cttcatcttg	gaagacgtat	tgaacgaacc	tcccagctat	aatcttcgnt	cgagttgagc	2280
cccactatct	ggaacacgcc	catgaagaag	atagcatctt	acccacggag	gaaccgctcc	2340
cctccgcaat	gacgaacacg	attgaaagcg	tcttcgaggc	attgcgcagc	atctccacct	2400
tagatcattg	agctt					2415

(2) INFORMATION FOR SEQ ID NO:885

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1116 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1116

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:885

tcagcagatt	tggttggtt	ttacggccaa	aaagcccacg	ttgggctatg	cctataagta	60
tcagnccgag	cgagtaggta	ctcgtctgca	gcatgtaact	atcaagtagg	gcgtacgggg	120
ncggctcacac	ctgtggccaa	tctcgaccag	tactgatatc	cggtagcggtc	gtgagacgcg	180
ccagcttgca	taatgcgatt	ttattgcgga	gaaagacctt	cacgaggggag	actttgtcta	240
tgtggaaagg	gtggagagat	cattcccaag	atagtgggtg	tggatacggg	tgcagcagta	300
tcgatggcag	acctatagtt	ttacagtgc	tctgtccaga	ctggctacac	cattgggtacg	360
cgaacaggga	gaagctgcct	attattgccc	gatgccgagg	gctgcccaca	gcagcagaaa	420
ggacggctcg	aacactattg	cgacgcaaga	cggcagacat	caatatcggc	ccggagacga	480
tcgaattgct	tatagccgca	atatgattcg	taacgttgct	gacttttatg	cccttacgga	540
gagcagctac	tactctgcc	cggcttcaaa	aaacgggctg	ctgccaaatt	ttggacagta	600
tcgaagcctc	caaagcccgt	ccgtatcagg	ccattttttc	ggattaggta	ttcgctttgt	660
cggagaaacc	gtagccaaga	aacttggtcg	gtctatcctt	ctatcgatgc	cctggctgct	720
gcgacgagcg	aggaatagta	cagatagacg	agatcgggga	aagaatagct	gctgctgtac	780

ttcatttttc	agccttcggc	agaacaggga	gttgatcgaa	cgacttcggt	tggcgggtga	840
tcgttggaag	ctgagacagt	ttccgtggcg	gtttccaatc	gtagccgga	aaaacggttg	900
ttatcagtgg	tacatttgaa	aagcgtagtc	ggatgagtac	aaaagctatg	gtagaggaca	960
atggcggacg	tatggcccg	tcgggtttcg	tccaagaact	tctttcattc	ttgccgggat	1020
cggatattgg	gcccgaagtt	agagagagaa	agctgagaag	ctcgggtgtg	cggctgatag	1080
tgaagaagga	tttcttccgc	tgatagaaga	ataggt			1116

(2) INFORMATION FOR SEQ ID NO:886

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 621 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...621

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:886

gagacacggg	ctgtagcttc	ggctgtctgg	gattgggcga	ttgtgtggag	cctgcggatt	60
cgatgctatc	cgcatcaacc	cgacaacctt	gctgccggag	tggtggagga	tgcttgtagc	120
gcatgtgggtg	cttgtgtcaa	ggcctgtcca	aatcgatcat	cgaactccgg	aagaaagggg	180
cctaagagcc	gccgtacttt	gtagctgctg	tgaacaagga	caaaggcggg	gtcgccaaga	240
aagctgtagc	aatgcttgta	tcggctgctc	gctctgcttg	aagcaatgcc	aattgaggct	300
atcaccatcg	agaacaacct	ctcgtagata	gaccacacca	agttcgcatg	tgccgcaagt	360
gtgtggaagt	atgtcccacg	aatgccatcc	acagctgaac	ttcccaccga	agaagaaagt	420
ggagccgggt	gtcgccacag	agctgccgca	ccggcacaag	agactgtcta	aggaataaat	480
aacaacaaag	ccacatagaa	ttattatggt	gaggactttc	cgaatcggtg	gtattcaccc	540
cccgaaaaca	agttgtcggc	aggcaagccc	gtagagggtg	tgccatatccc	tnacagtagt	600
catccctctt	ggtcagcaca	t				621

(2) INFORMATION FOR SEQ ID NO:887

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 582 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...582

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:887

cggtttgat	ttggctctcg	gtgtaggcgg	ttaccctcgc	ggacgtat	cgagatatac	60
ggaccggaat	cttccggtaa	gaccactctg	gctatccagc	cattgccgaa	gcgcagaaaag	120
cagggtggctt	ggcggccatc	atcgatggga	acatgctttc	gaccgcacct	atgccgaaaa	180
gttgggctgc	aatgtgataa	tctctggata	gcacagccgg	acaacgggtga	acaggctttg	240
gaaatgccga	gcaactgatt	cgctcttctg	ctgtcgacat	tatagtcatt	gacttgtcgc	300
agccctcacg	cccaaagcgg	aaatagaggg	tgaatggggg	gacacaaggt	tggtttgcac	360
gcccgtctga	tgctcgcaagc	actgcgtaag	ataccggagc	catcagcaaa	tccaatacaa	420
cctgtatctt	catcaaccag	cacgagagaa	gatcgggtgt	ttgttcggca	atccggagac	480
caccacaggg	ggaatgcact	gaaattctat	gcatccatcc	gcacgcacat	tcgcaagaga	540
caccgatcaa	ggatggcgaa	gagatcatgg	gacacctgac	ca		582

(2) INFORMATION FOR SEQ ID NO:888

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1545 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1545

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:888

gccggcaaaa	tcttgattcg	aagcgatcta	aggaaaagaa	agaaccctcc	atcatggcaa	60
aaagcatcca	ggcatagggtg	cctaatagat	agaaaggctg	cgcagggtca	gaacatcctg	120
tatggtttgg	agcgtatggg	tagagggtag	cttggcgaaa	tctggtacat	aggcatcccc	180
ccgaagagac	tgttggccaa	taggagtgtt	ctcctgtctg	tgccctccaa	tcgcgtacgt	240
cctgcccgtg	ccgctggctc	ccgctacgtc	gccctggaac	agtacacgcc	cgtcaatgag	300
gcgggataga	aataggccaa	agcaggggct	atgaaaagga	gtagaccgca	gcataaggta	360
ggattttgcg	ccaatcaggc	tttgtcttat	cgtggtgggt	acggttccgg	cagcagctgt	420
cggcttttctg	ttttctttca	tatgtcgttt	gtttttcggg	tacaaagtta	aaaaaccatg	480
tgattggctc	gcctacgacc	aactgcttct	ctgaacgttg	agcagagaag	tatcctccga	540
cattgttatt	gtatgcaaga	ggtcagaaaa	tgagcagttc	aaaccttgga	caagctctct	600
ccctattcta	tatacatatc	tgaggacaaa	gcgaaacatt	gaggaaagag	gcggcatcca	660
tttgtttctt	gccgggcatt	tggagcagag	tatacgtatg	acccctttgc	gtgtcatcac	720
gtcagaggtt	ttcttgccca	tatgatggag	ccgaatcggc	ctctgtgtcg	cggttctcgt	780
ctatacttgg	gtaccgtata	ttttcagcac	gatggactca	tccttgagac	atgagcttgg	840
tccaagctgt	aggagcaggc	gatatgctgc	ggatgaaatt	gttacctctt	cagccgggtt	900
gtcccaatcg	atacggcagt	cgtctttgaa	atcttcggag	ccggtcgagc	atcaacatag	960
cccggaaagt	gtccttgagg	atggagacgg	gttctccttc	gagaaacaag	tccactgtgt	1020
gcaccaatag	gatgcaccga	gagtagccat	acgttcgtac	aattcgccga	aagtctctca	1080
tgtcctatag	gcaacttctc	ttgcagcagt	acttcacccg	tatctattca	tgccggaggc	1140
ggaaggtggg	aactcccgtt	tccgtatcgc	catggctatc	gcgtgggtga	taggggctgc	1200
tcctcgatac	atgggcagca	gagagcatgc	agattgattg	ttcccatggg	gggcatttgc	1260
catacggagc	gaggagcata	cggaaagcca	ctacgatttg	caagtgcggc	tgataagtcc	1320

gtattcatcg	agaaaagatt	cctcgttcag	attgtccggc	tgagagaatag	gcgacccaat	1380
tcctgtgcgt	atagtttgac	catactggga	cttaccttat	gcctcgaccc	ataggcttgt	1440
ccggcatagt	gaccacagct	tttacttgg	tccgttttcg	accaaagctc	ggagtgccgg	1500
aacagcaaaa	tcggccgttc	cataaaaaatc	aatcgtagtt	cttct		1545

(2) INFORMATION FOR SEQ ID NO:889

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 626 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:889

gtggctccgg	aagcgatcac	agcttcttgg	actatatattt	ttcgtttagag	gtggagtaca	60
ctttgagcaa	aagcgtattt	acacaagacc	ccaaaaacga	ctatcaatag	agtagacctt	120
tcattaggca	gtacatctcc	ttctcttgat	ttaataacttg	gccactaatg	ggagtcgtat	180
tcgaaatgaa	taagaacttg	atggcttcga	cattggtttc	atttccaact	ttgtggacta	240
tgatcccgct	atgcgtggtc	tgaaccgata	ataatagaag	aagactgtgg	atggctgatt	300
ttaatccctt	gngagcacta	agtatagaga	tccaaatgat	gttgatgaca	attcggataa	360
taccgtgggt	ggagaacgct	cccataactt	ccgatcactt	acccgggcca	ttacgtatat	420
ccgaagcaat	ctttcaatta	tctcccgac	atacaccgac	aaagaaagat	ctggctctta	480
aacactgtat	ggtattccgg	ctttggcata	ccgataagga	aggcgatcgt	tatctggaca	540
cttttcaaga	tcaccaatct	aatgagatac	agatgggatc	aaatacgaga	cattactctt	600
tttatgggtg	gagttgnca	tatgta				626

(2) INFORMATION FOR SEQ ID NO:890

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1327 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1327

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:890

ggccgactgg	gcttcctcac	cgatgtcgat	tgccacgagg	cttcggagcg	atcacacgcc	60
tgctggacgg	cgacttcacc	atcgagaccc	gttccctgtg	gaagtgaccg	aagacaacgg	120
ctcctctccc	tcctacgccc	tgaacgagca	gccatactca	agcgtgaaac	cggttcgatg	180
attcgggtga	atgcctcctc	aacgacgact	atctggcggc	ttacgatgcc	gacggcctcg	240
tggtgccacg	ccctccggct	ccacagccta	ctcgtgagc	gggaacgggc	ctatatcatg	300
cctgcctgtc	ggaacttcgt	ccttacgccc	atcgcccccc	actgctgaat	atgcgtccgc	360
tggtcgttcc	ggacgacacg	gtgatccgcc	tcaagtggat	tcgcgcagtc	ggaattacct	420
cttggtgctc	gacggacgaa	cagaacgttg	ccctgcgata	cctccatcct	gctcaaacga	480
gctcctcaca	gctgcgaatg	atccgtctgc	gtccgcactc	cttcgccgaa	accctgaggg	540
taagctcatg	tggggagcag	ccgtaagata	aagacacttg	cgacggtgac	aacgagccaa	600
cggacactta	ccatagacta	ctcccataat	ggaagaaata	caacctgggt	gctgcgcacc	660
gaagatctgg	tcaaacgcta	ccggaacgta	cggtcgtgaa	tcacgtatcg	atagaggttc	720
ggcaaggaga	gatcgtggga	ttgttcgggc	cgaacggagc	cggcaagacg	acgactttct	780
atataccacg	gggctggctg	tccccaacga	aggacggata	ttcctcaatg	atcggacatc	840
acccaatacc	ccgtctacaa	acgagcgcgt	gccggcatcg	gcctctggca	caagaggcat	900
ccatattccg	caaaatgtcc	gtggaggaca	aatcctctcc	gtcctcgaaa	tggccggact	960
gccccagacc	tatcagcacg	aaagctggaa	agcctgatag	ccgaatttca	ccttgagaaa	1020
gtacgcaaaa	ccttggcgac	cgctctccg	gcggcgagcg	acgccgtgcc	gagatagccg	1080
ctgcctggct	atatcgctc	gcttcatcat	gctggacgaa	ccctttgcgg	tgctgatcct	1140
atcgccgtac	aggacattca	ggccattgtg	gccaaatcaa	ggacaaaaac	atcggcatcc	1200
tcatacccca	ccacaacgtc	cacgaacgct	tcagcatcac	ggatcgcgct	tacctccttt	1260
tcgagggcaa	agtgtgtatc	agggcacggc	cgaagagctt	ggctgcgaac	gaagtcgtaa	1320
gggaaag						1327

(2) INFORMATION FOR SEQ ID NO:891

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 316 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...316

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:891

gggtttctca	agaagcacgg	tggtggacat	cgtagagcat	caaggcattc	cactgctatc	60
gtggatgtgt	ccttcacctg	ccacatgccg	gactgtctga	gatgccttac	aaacccgtca	120
ttcgtggagc	gcatacagg	ccggtaccgg	cctgcccaca	tacaggatag	gcggatgcag	180
ctgtctgagc	ggcgactcat	cggtgactgg	agtttcgatc	ggccgttgca	ggtgggcgat	240
gaactatat	cgaagacatg	ctccactaca	cgacggtgaa	gaacgacat	gttcacggtg	300
cacgccatcc	ggacat					316

(2) INFORMATION FOR SEQ ID NO:892

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2872 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:892

gctcgggacg	gatttccgtc	ggcacctgga	aggtagcacc	accgatacgc	ggctcttcac	60
ttctacctga	ggagtgatat	tatcgagagc	cgccttccaa	tctcgagggc	agacttctct	120
tcgtttgagt	gcttcgtctt	cacgatgcc	aagcaccgta	gaagatactg	aaagctgtgt	180
tcttctttcc	atcataatta	ggtgattaac	gaacttagtc	accctcacat	caccatagac	240
gggatcggca	ggatctgtct	ttttttaggt	tttgcttttc	tcattgtctc	aaaaatttcg	300
tttttgtcga	ttggttgccc	tttcattttt	gtcttcaacg	ctccgccgga	gcatttactc	360
aaccctgttt	aagcctatcc	aattgaactc	aaaccgggtc	ttaaataatt	tgttggttgc	420
gcccttgatc	gtagcgcgat	ttagattggg	gaagtgattc	gtccttatcg	gtctccggcc	480
tcgtctcatc	ggccgacgag	tccgcttagc	ggctcttact	tcttaccttt	agcggcaggg	540
cctgtccggg	cttcggacgc	ttggcaccgt	atttggaaac	acgctgcgac	ggccattcac	600
acctgtctga	tcgagcgtgc	cacgaacaat	gtgataggca	caccgggcaa	gtccttcaca	660
cgacctccac	gaaccgcac	gatgcttgtt	cctgcaagtt	gtgacctctc	ccggggatgt	720
aggcattgac	ttcttggaat	tcgtcagacg	cacacgcgcc	accttacgca	tagccgaatt	780
cggctcttgg	gcgtagtcgt	ataaacgcgc	acacaaacgc	cgcgacgctg	cggcacgaat	840
tcaatgccgg	cgatttgctc	ttatccgcga	aagattcacg	acctttctaa	ccaactgttg	900
aattgtaggc	atttcttctt	tctttaaaac	ttgattataa	ttatctcttt	cctaactctat	960
tacactgcca	actatacgag	agtggcgcaa	aggtagacat	atcttcccaa	tccacaacag	1020
tccccgcagt	tttttttcac	ggcaacgctc	taatactcaa	tagtatcaac	cgacatctta	1080
ggccgaactg	ttccgcccga	gcgagagatc	cgaagagggtg	gatgcgcccg	aaaagaaaaga	1140
gaatacaaaa	cagcccga	aagtgcagata	cagcgtcagc	cacagaaaag	aaacgcactg	1200
catatatcca	cagaaaagaa	acgcattgcat	atattaatgt	acgcgcgcga	gagatgctga	1260
gggcagcact	attcgtccaa	agagagaaaa	cggaaacggaa	aaggacaacc	atccagcaaa	1320
ccgttacgcg	ccacaatttt	ctgtttcgat	gtccgcgaaa	acgtggcgcg	ggactttttc	1380
gttttggttc	gggaagtaaa	aaattctcgc	gccacgagga	aaaattctca	taagactttt	1440
cccgaaaaaca	cgcgccgcaa	tcagagcaat	atggttcgag	aaaatcagat	cggaatatat	1500
ccgcccaga	gcgagagggt	agctatgaag	ctgtaccgac	agcctcgatc	gccacaataa	1560
ctaccgcac	agcgaagccg	tcagagccaa	gaagagcaag	caatagacca	caacgagatt	1620
gtccgccaga	agctccgcca	ccaagagcag	aggaatagct	gcttgtgtcc	cagcaaaaaca	1680
aaaggaatag	gagcaatgca	ggtagcccg	atagcacc	acccgggcat	cgctgtagaa	1740
aggtagggcg	agaacgttca	gcaaaatagc	tggcaggcta	tgtagcctg	agcgataatg	1800
tgctccgtca	gatatatgct	ccggctcctt	tttgtcgaa	agccgctttc	gtactcacgg	1860
cggaatggga	agaatactga	tgatcctgac	agccttcttg	ccttgaaacc	attcatcagc	1920
aggctccata	ttcttgaaaa	gaaagggagg	gacttcaacc	atctttctgc	tcggtgacaa	1980
acctcatttg	tttgtaaaaa	aaggctcctt	ccccgtgtgt	cgctcggcaa	tcatttctcc	2040
gctatcgttg	ccgactgctt	attctccttt	tgcaaggagg	atatttcttt	ttgatccatc	2100
cgatactttg	acgcgtaagc	tcttcgccaa	tgggcttttt	ctgcaaggga	tcaggctgat	2160
cagttgtgca	aagatgatgt	acagagaggc	cagcacgaaa	agggctgaaa	gggacgggaag	2220
tagacaaccc	tcttgccacc	gataaagtcc	cgtacaaata	acccggggcg	tagagcagct	2280
ccacgatagt	acgcccga	ccgtgtcgat	attggtgaag	ccgcctatca	catttcggat	2340
catctgccgg	aatgataccg	tccgggtgca	gaggtttgtc	cgacgcggtt	gcagaaattg	2400
ccgtatatcc	atctccgcag	ttttggcata	tatgtatgta	tgggtctgca	gtggagtcgc	2460
tctgccacgc	atcagtctca	actcgaatgc	gcggattcga	cctgaagggg	aaagagaagt	2520

gattgcaacc gctgatcgat ctttcttgca gtagtctgcg cttccgtagg attgccccaa	2580
aagccagccc ggtaatgcag atattcccca ttgtcccgaa gtggccaaat cttctattgc	2640
caaccaagga gcgatgcaag catgaggatc tgcaatgagt tggccatttt tctctcgaat	2700
gcccattgctc cccgtttttc tgtttcttcg aagtactatc gcgcaacctt ccattttttt	2760
cttcgttttg ctactcgttt gcattatctg aattcacttg cttgcgtaca aatatagtta	2820
tgacaaatgg agggcgtagc acctcggttc ggtcgcttac gggtagagctg cc	2872

(2) INFORMATION FOR SEQ ID NO:893

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 542 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...542
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:893

gtaagaacgg gatacagggt cgaaataggg tatgcttatg gcgggtatgt aaactttccc	60
gtctgacggg gtaccacata atactcgatc gtacgctgcc atcggcacc gaagtactta	120
tgcgaaaggct gctctcggcc ttggagtgta ttgttcgaag ctgtcgggaa atctcacttt	180
gggatctccc atcaactgat atttccgctt ccgttaatta cgagcttgag tgtaagggct	240
tcgttgtttt ggccctgacgg tcattgaaag aggctgagat ccgataatta ccaaagcacc	300
atcgaatcct tgggggtttcg gttcaggcaa gggagcgaca tctttgtgac cggattgggtg	360
gtcagagtc tccgcacatt ctcatcaggn tgagtacaaa gaagtcatt atgtcgtcta	420
tctcccgtcg gaccgntact agacacgaaa gttgcccgat ggaatagtca gcttaccgct	480
tttttgagga agagcaacga ctgcttgaga acggttgtct gatagttccg tccttcatac	540
tc	542

(2) INFORMATION FOR SEQ ID NO:894

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 865 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature

(B) LOCATION 1...865

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:894

gtcagattat	gtgcagcctc	ctgtggtaac	aagaactgct	ccccctcgaa	gaaagggtgca	60
ctccatccgt	atcggtagcg	agaagatgaa	atacggcacg	cggaagaaac	cgatgggtttc	120
tatctgccga	tacaggtcgg	caggctctct	tcgatgtgga	tcactctcac	atacagatcg	180
tccggcagtt	cgtcggatgt	actccttcca	cggaattgcac	ttcgccctct	tccgtcggga	240
tgggacgcca	tgcgggtcga	aaagcggatt	gcccaggcgg	actgctatcc	gctctgctct	300
tcacgggaca	gatagtgctc	ctccttgag	gcttgtgtat	gccttcgctg	ggttcatagc	360
cggagtgttc	ggacagatac	ttttccaaaa	gctgtggcgg	cgaatcacct	tgagcgcata	420
tttccgtccg	ctttcgggtc	gtgcgagtc	ggaggcaggc	agtagccttg	tttgtgcagc	480
agatcgagta	atactgttgg	ttgtctatct	tcagcccggg	cagggtgccc	agtcgggtctc	540
attgacgggc	agaccgtctt	cttccaaaaga	atagatagct	ttgagcgctt	ttcggacaga	600
cggcgtagat	cgaagcgaaa	cagaagattc	gagaataatt	catgcttcta	taacttctat	660
tattaccgaa	agtggtcggg	ctgttgccctg	tggcacaacg	ttttcagtat	gacaaaagtg	720
cttattttat	cgaagatccg	caaactgcag	gctctctggg	ctatttacct	gcattgagta	780
tccgagcgga	gtgcttctac	aagacggttc	catttcttcc	tgactattcg	gcattgacgac	840
tgaaatcgtc	caaaaagttt	cacac				865

(2) INFORMATION FOR SEQ ID NO:895

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2749 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2749

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:895

gctccgagga	aagccaacag	ccctcctccc	ataccgcctg	cagctccagt	cccgggatat	60
ggactatatc	ctgccccgta	tgcgggtgta	taacggcacc	aaatgctgca	tcgaatcatc	120
caatcggggc	accatctcct	catccgcccc	ttctgaggag	caaaggcaaa	agcggcacct	180
tcggggccgc	aaaaagattg	cgcacatcgc	aggccaccgt	aaaaagcgaa	tcggccaaag	240
ccggagtgcc	gaagagtcac	cgatgcgata	gacctccgac	agcaaaccgc	cgcaaggggc	300
atgccctccc	ctatatctct	cccatcccga	tcgtagaagc	gaagcccaat	gcctgtagca	360
tccccagttc	ggcatcggtg	gtggcgctgc	cacgatcccc	acgataaaqt	tacgacaacc	420
tcgatccaga	gcattcttga	tagctctccc	gttcggaacg	tggtagtctg	cataggattg	480
cgcgggtctt	cggcacgaga	ggcagtcgcg	tgatgctcgc	catttcgatg	aaagccgtcg	540
tccgtcagcg	gatataccat	aagaagcctc	gcgcatttcc	attagtggga	gtgtgcacga	600
acggctatgc	gctgcccac	tgtggcagct	atcagtaatc	ctgcatcccc	tctcccccat	660
cagctacggg	cagtagcatt	acttctcaat	cggacaggct	gcccgtacgc	cctcagcagc	720
tgcttctctc	gcctcacaga	ggagagacaa	cccttgaagg	agtctatggc	tatcacgac	780
ttctcatccc	gcatttagtt	tacaacaaaa	tccggaagca	ctgcaaagca	tccaacaaaa	840
attccaaaac	ccaagagaaa	aaacgataga	caaactaact	cgatggctct	taggtttttg	900
ctctcattct	gtaaacctgt	atccggaaaa	gcaaattccg	gtatcagggt	gagattgcta	960
tcggaaagga	ctctttaagt	catcaatttt	ttattgtgct	gttcgcaaaa	aaacagcgac	1020
actcagaata	ctttcgtata	tccatcgaaa	ggaagtcttc	ggctctgaca	cctccatccc	1080

gagaataaaa	gccgattggg	gcttgaagga	atgggaaaat	ttgtccacc	gtctgtcctt	1140
ttctctgcat	tgcttttcac	ctcaatggca	acaacaaacc	tttcttgccg	aggacgaaat	1200
cgacttcac	gtctcgttcg	cgccataaaa	tacctcgaaa	cgatgaacaa	aagcctgact	1260
gacgaggtag	gctcaatgcc	tgattcgaag	attcgcccc	aggacttgcg	atcaagcatc	1320
gctgttcaaa	ggtaaaaggg	ctatacacca	tcttcaatgc	attgttatag	actgcagttt	1380
gggaataactt	gccttcctcc	ttgccatata	ataaccaaac	tctgaagtc	acaaagcaat	1440
ccgctttcat	ccaacagatt	gatatatccg	ccaaggtcac	cgtattaccg	gcattcttga	1500
gtgagcctaa	catcttggtt	aagaaaagtaa	ttctcccgaa	taggcagccc	ccaattcgaa	1560
agtccggcaa	gcaaagccgg	tttacctatc	ggtgtaccca	tcagaatgtc	cttattgtag	1620
ttgcttcgat	aatggcagct	tgaatatatt	ggctgaaacg	gtcgtctcat	cggtcaggga	1680
agcggcaccg	ggatatcccc	cataaaacag	atattgttga	gcgagaaacc	gaagcagtct	1740
ttcatctcct	gatagctcca	atggctcatgc	gtatttcttc	gaatcgaccg	gccagcgact	1800
ctgacaaccc	ctttccaaca	acacacgact	actgcccaac	agcaacacct	tgatattacg	1860
gtatggaacg	tatcatcgtc	ccactctttt	ttcacgactt	cactccaatt	acaatctttt	1920
gtatctcgtc	gatcacaaga	ataatgctct	cccactcctt	gcctccttca	ggctacggac	1980
agcagcccaa	caatcgga	tccaagcacg	ttcacagtcg	gaacattatc	ggctgagaag	2040
aactgatagg	gtgcatccag	tccttcagca	cctgcttgac	aaccgttgat	tttccgattt	2100
gacgagcccc	attacgactt	gaatgaatct	cctccgatct	ttaagacgat	ctgtaacaca	2160
tgatactctg	ctcttttata	catatccgca	cattttactc	agtaggtgag	tatttttact	2220
cagtgcaaat	ataataaaga	catttgattc	ataacaatct	cttacaagtc	aataaaggca	2280
atgtgattat	cccataaagg	gtggattatc	atgtattttc	caatagtaaa	tgcaacaccc	2340
tataaaca	aatacccgga	gggataatcg	ctcgggggtg	gaagccaaca	gcccacctcc	2400
ctaccgcctg	cttctcctgc	ctcggcagag	gagagacaac	ccttgaagga	tctatggcta	2460
tcacgatctt	cttcattcca	cttcgggctt	atttgcagcg	atagtcggca	gtccgcaagg	2520
atgcaagcat	gagaggaaaa	gccaaatcac	aaaagagcca	gtatgatccc	ataaggcatc	2580
caaagactct	tggagaaagg	caacgccaat	agttcatctt	gatcttacga	acatccatat	2640
cgtagattcc	ttgtgcgga	ggtcttctc	catttttgct	acgcttcggt	tgtatgctcg	2700
cgatacttcc	tttccagttg	caagtagaaa	gcattccacca	aggccatgc		2749

(2) INFORMATION FOR SEQ ID NO:896

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1167 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1167

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:896

gagacaaaat	aatcaccgca	ggcgggtatac	acggcaccat	acgcgaggtc	gcgaaaaaga	60
tttcttnntc	gaaatcgcca	atggcgtgaa	catccgcacg	ataaagggtc	tgtatatgta	120
tctgctcgcg	aagcggaaac	agacatgcca	acaagaaaga	ctaagctgca	taaaagcaat	180
ctatcggagg	aactgaagag	acgggtaggat	attacgtcca	ataacacttg	gcataaggca	240
cccccatctt	tcagttcctc	atcgttctcc	accaaatccg	ctaaagggaa	tgaactcaat	300
ctcctcaatg	ccgatcgga	aaaggggaaa	agtatagaca	aggatccgct	ccccgttcac	360
gccgtgggag	gaacgtcctt	gtctttttcg	ctttgtgggt	ctctctgccg	ttttttgggt	420
tatgcagagt	ctgcaggatg	ttacaccact	tcattttcga	ttcccatctc	ctattccgag	480
ctgccgccgg	cataggagtc	tcaggcaggc	tgcccgaccg	cttggaacatt	atgctgaaaa	540

tcagggtatc	gtgcttctga	cctataagct	gaaggggttc	tctccgataa	tatctcccca	600
tccaaagcgc	aattgcacaa	gaaaaagagc	atgcgacgaa	caaattgggat	ctggtcgaac	660
tgctccaaaa	acaactggag	acctcccgcg	cgttgacagc	atctcgcccg	aagacatcaa	720
agcgacattc	tacaccgcaa	aaagaaaacc	gtacccgtag	tcataaacgg	acaaaccgtc	780
cccaagaagg	attctacgcc	ttcgatccca	tcttctcgcc	gagcgaagtg	acctatatgg	840
aagtgcagaa	gcgttggcga	gtatcgggtc	cgtgaatacg	gagagttttc	tatcgacgga	900
ttggagagcg	atttctccgg	tgacatagcg	atgccccgat	cgatgatata	gttatcgatc	960
cgacaaatat	cagaatgcaa	tgcggtgtaga	gcaactaacg	gaacaaacgt	tcgaactgcc	1020
gatacataaca	agaatgtgcc	tgaaggcttc	ctccttcgtc	ctctaccggg	caaagtgtga	1080
tacagctcac	actnccaca	tcgcactaca	aagaagtatc	ggaagctatt	tgcaaacagc	1140
cgttttctat	cgcctccttc	cggatttc				1167

(2) INFORMATION FOR SEQ ID NO:897

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 522 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...522

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:897

gggcaaacac	cattagcaga	actaatgaga	ttgtccggct	tggtcgttgc	ttcactacgt	60
aggtctcctt	gtcgaagttt	acgtatctga	acttgaacca	ctcaaactac	cattgacaat	120
tatcggcaca	atctgaaatt	tctcactagc	gagatattca	gctccacctt	ggcaatggca	180
cgcacaaggg	gcacatgtcc	aaaagacgat	tggccaagaa	gtcgtgtgtc	ttgtttccgg	240
acatcggaaa	ggagaggcta	tatcggtcga	ccacggcatt	gcagtcgtcc	tcttacagtc	300
tgcaaatacg	tttcgttagc	gacagcatca	agagccgttt	taacgcatta	tcaacattgg	360
ctacgacata	tactttgcgc	tctccggcct	cgatttgtgc	atatccaact	tcaccttcac	420
atcgtcagga	agccagggtcc	cccggtgaaa	gtgttaccgg	taatataagt	atttcgccgg	480
attcgcccct	actgatcgaa	caacaaggag	ggtaaagatt	gg		522

(2) INFORMATION FOR SEQ ID NO:898

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 619 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...619

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:898

ggcgaaggcc	cggaagtctt	gacgaagctt	ggcaatgacc	cttcggccaa	cctttgaatt	60
gctgaccatt	catttcaaag	tcgaacgac	cgtccgnact	atgtgttctg	cgggaatatc	120
gctttcatag	gcttcgtgta	ctacatcatt	ttgcccggtga	atgtaccgga	gagattgatg	180
gcgaagtgct	cggtagacgt	accgtagcaa	cgaaatagcc	gtacagattc	ggagtgcgta	240
catagctttc	acagagatct	cggtttgtcc	cgttgttttg	tccgcttcca	cagcgtatag	300
atgcttccgt	agcggcttct	ctgccatgta	ccgccgagct	ggagtccaac	gatttgttgt	360
aggcgattct	tccctccaga	ttcacaccat	atccttcgat	actccatcct	tgtcgttgta	420
gatggtacga	atgatccatt	cttgccatcg	ctcgtggttt	cgaccttata	ggatggtttg	480
aactgattgc	gataaagggtg	gagaaggctt	ctcccatgat	attgaattgc	caattcgtcg	540
ctcttgtggg	taataatcga	aagaagcact	gatgccttcg	tggaacgtct	tctttcagat	600
tggggggaaa	ggacacgct					619

(2) INFORMATION FOR SEQ ID NO:899

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2762 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2762

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:899

ggtagtactc	tgcctttcca	aggacctgcc	ttttgcacag	gctcgttctg	tgggtgccgaa	60
ggctctggaca	aggttatcca	ccgtttcagc	tttccgctcg	actgctttga	gaagggttat	120
ggctctgctga	tgaccgatgg	ccctttgaag	gtctcttggc	tcgtgccgtc	gttgtagtgg	180
acgaaaacgg	taagatattt	acgaagagct	tgttcccagag	atcactcaag	agccgaatta	240
tgaagtgcta	tcgtgcact	gaagtaattc	cgttcaaata	ccaaatattt	tcgggctgtg	300
ttcaatctca	ttggcacagc	cccgattcca	ttttcagtat	ctacaaacaa	acgtttcgat	360
gcccttctct	cttatcataa	aagaaaaagg	ttgaggaatg	gctgtaaatt	gtgaagagag	420
aggctcggaag	gagcatgaaa	taatgggtcg	gaaagccttt	agtatttggg	cttatccggt	480
ttttctgtcc	aagacgaaaa	gaatggagtg	cttcacctcg	cagtatcggg	atgatcggat	540
agagcggtta	tccataggac	gagccagctc	ttgatagata	aaatcgtctc	gaatccata	600
tcggcagcat	cctgccgatt	gttgccatag	aaaatccatc	tatgcgtgcc	caatagatgg	660
ctccgaggca	catcggaac	ggctcgatga	agtataaatg	gtacatcccg	aaagatcgaa	720
agtgccgagc	cgcttcaagg	catacgaata	caattcactt	ctgcatgcgc	tgtgggggtca	780
ttgtgagggt	cacacgatgt	ctcgtcgtcg	caatgatctc	tccatctttt	acttcacagc	840
acaaaaaggc	ccccctccat	tggcaacgct	ttcgtcggcc	aacggatcgc	ttcgcgcata	900
atctccttat	cctgttccgt	atgattcatt	gattgtgcat	gttcaattgt	ttgcttccga	960
caggttgtcg	gcttatgctt	gggagtagat	acagtttcat	tcagagtgat	tgccgtagga	1020
gtgatcctgt	caaacggcga	cgatagagca	ttccgacagc	cAttttgaac	gttttcttct	1080

cataccggta	tgttgcataa	tttcctcggg	cgaactctta	tccccgaggg	aagccgaccg	1140
cctcttcttt	ggagcatgtg	tagcagtcgt	tcgctccgga	gtcaatacgg	tcatagccta	1200
tcggtttgag	cgagaggtcg	attttccatc	gtcacggagg	cgaatcacga	aagctttcac	1260
ttgtgccccg	atagcaaaagg	catcggtagc	gtatcgggaat	agatcatccc	ccaatgggta	1320
tgaccacgat	catgcgataa	cccggatcga	ttcgttcgta	aaccagtgcc	gaaccttgtc	1380
cccagggggag	taggatgggg	gaatgttgcc	caaattgttg	gcaatttcgc	cgagccaacg	1440
atcttaccgc	tcacatgatc	gatataagca	agacgaaata	gcgtccgcct	tctcgaatga	1500
gctgcgtctg	ttctcgaaaag	gaacgaagag	atccttgtgt	atgccccatt	ccatatacgc	1560
cccactattg	tgacggagac	ggcatgcagc	agagccacct	gtcccacttc	gacaagcgcc	1620
gcatggtggt	ggcgaatgag	ctgccttcat	tgtcatgata	gacgaaacct	ccacttccat	1680
accaggtgca	gcatctgagg	ggaggtagcg	attggcaaca	aaatatccgt	atcgccctcca	1740
tcgagatatg	ccccaatgga	tacgtacggg	cgatggtcag	acgacctatg	cgtcgcgagc	1800
ggtatttgct	ccgttcatcc	tccgggatta	ctcaagcgta	actgacgatt	cgtcgcgagc	1860
gaggggttgca	ccaaaataga	ttcgggcata	ccatcgcgct	gcacctgaaa	gcgcacgaag	1920
taatctgctg	gtcgtttacg	tacgaacgga	agaagaaaag	taggcaaaaag	ccggcttgta	1980
tttgggctga	gccatcatgc	gtgcaatctc	tcgtagttct	tgggtgacca	ataacgacac	2040
ccggccaaac	cattggcacg	gtgaagggtg	cttcctcagt	acggctacttc	atgctctttt	2100
tgatgaatct	ttgtaagcag	aggagtactc	tccggatccg	gacaaagcag	gaatacgttg	2160
atactgatga	tacgggtctc	ggctttcagc	cctgcctttg	ctgccgagag	tcggggctga	2220
ctgctgccac	gagcgaaaagg	tcgttggcct	gatatacagc	cccgtataga	agtaacgctg	2280
actccgcaga	cggaaacgtc	ggctctcacga	tagcgaataa	acgggaactc	catcatcatc	2340
aaaggcacgt	tgatcgcgca	tattctgcca	actccaaagg	tgtggaaaagg	aaatcattcg	2400
atcgcatatg	cagaaaatth	ggagattgtt	cctggcattg	atcagccgta	gccgagctgg	2460
attacataag	gagcattgat	ctcctgtgtg	ccggccggct	aatgggggag	gatatcatcc	2520
tcttgtcacg	cggagaatac	tgccaagatt	atgagggggc	gaactattga	atgagggtaaa	2580
gagcttggtg	ttgtcgacag	ataataacaa	tcgacgatta	catcgggatt	gttcagcgct	2640
tccttcttcc	catggcactc	agatatthgc	ccacttcttt	gtagacagct	atatcatctc	2700
ctcgttgtcg	ggcgaagaag	ctgcgaaaga	gtatgtacgc	agatgggtaaa	gtccgctttg	2760
gt						2762

(2) INFORMATION FOR SEQ ID NO:900

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 573 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...573

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:900

nagttgctgt	gcgcaataat	gagggtagga	tgggtgctcat	caatggcaag	agatttgctc	60
gctgcttatc	tattattcca	tcacgcgtcg	caaggaatgg	gcgatttgca	tcctgatgat	120
tatatcgtca	agacgattgt	gactacgaat	tgatccgcga	tatagcgaag	aaagagcatg	180
tgagcatgtt	cgattgtaca	ccggtttcaa	atggatagca	gccgtaataa	gagagaatga	240
aggctctgcc	gctatatagg	aggtggagag	gagagttatg	gatttttggt	gggagacttt	300
attcgagaca	agagttcggt	atctgcttgg	gcactcttct	gtgaatggca	gcttgggctt	360
tggatcgagg	catgagtgct	tatcgactca	tcgcagcatc	tatttggaat	acggctctta	420
ctacgaaaag	ggacttagtg	tntgcgtaaa	ggcaaatccg	gagcagaaga	gatagaagcc	480

atgatgagaa ttatcgtgag tatgcacctg tagaactcgg agctcgcctg tgcangaaaa	540
tggactatgc ttctctcgaa ggaaaagatt cac	573

(2) INFORMATION FOR SEQ ID NO:901

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2571 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:901

tccccgagga	gatccccggtg	gacgaagtga	ttgtaagtat	cggtgtatcc	ccaatccgct	60
cgttccccga	actattttccg	gtcttgaaagt	gacaagcaag	gaaccatcgt	cgtcaatgag	120
agcaatcaga	cagctctccc	cgatgttttg	ccggttggtga	catcgttcgt	ggcggagcca	180
ctgtgatatt	ggcgaatggcg	atggacggaa	agcagcagct	gccatgcacg	aatatctgaa	240
agcggatcat	agccatgact	ccgagatgaa	agggagaaga	tagctatgcg	ctatccgaag	300
tcctcattcc	cttggctctt	gagggtagtt	ttcactaccg	attgccgagg	ggttagccga	360
gaaggctatc	gtgggggatgc	gttgcgtagt	actttcggag	ccaagcgata	ctatacgggg	420
attatcatcg	gactgtccga	caacgtccca	atctgcaa	ttcattcaag	gaggttctct	480
tcctgcctga	gataagccgt	cagttactgc	ctcacagctg	agtctgtggc	agtggctgtg	540
gcttattaca	tatgtacgca	gggagaagta	ctccgtgctg	ctctgcctca	gcattactac	600
ccgagagagca	taccgtcatc	cattataata	cggacttgaa	gccgacagcc	ggcttagtcg	660
tgatgaagga	gagctcctcg	atattttggag	tcggcaaaaag	gacgaacctc	cacgcttgac	720
gccctgcaaa	aggcttcggc	aaacgagcga	ttcgcgcttt	tacctccttg	gtcgaacgag	780
gggcatacgg	ctggagggaag	aagtaaaaaag	ccgttataag	cccaagtcag	aagattcggt	840
cgtctggcag	agcctttccg	gacggaaaaag	acttttgcc	cgttctggat	agtttgcatc	900
gtgctcccaa	gcaatccgcc	cttttgcttc	atgggcagag	ctgataacag	agcactccct	960
cccatattcc	tctccgatgc	gcaaaggcta	ctggcggagt	ccgatccctc	tgctacagtc	1020
accctttccc	tttgaaaaaag	aaagggattt	ttctatccga	atctgttaca	cactcggtat	1080
gtattcggcc	ggcggagggtg	agtaccgctt	gtgggagcag	ccccaaggga	agaaaaagcc	1140
attcaatcgg	aagagagttc	tacagactcc	gcagtacggc	ttctctacct	caaaaacctc	1200
tttctctcct	ctatacgcat	gacttcgacg	caaagaaaaa	caactcttag	aatggacgga	1260
agaagttgtc	cgttaggagg	ccaagtcctg	tacctctctc	cggaaagcgaa	caaacgagga	1320
ggagcgatac	tctgtccaca	cgtatggccg	agaggctggg	cagttgtttg	cttcctatca	1380
tgcccttgaa	agcgaatgcca	aaaggggtgga	agtgtggaac	aattggccac	aacggaatat	1440
ccttgcggtg	tgctgggtgt	tcgatcggca	ttttcctgcc	attccgtcgc	ttgcgattga	1500
ttatcgtgga	cgaggaacag	aatacctcta	caaacagcag	gatcctgcc	cccgaattcca	1560
tacgcgacgg	tggcagctcg	actcggccgg	atccacgact	gccctgttgt	gttggtcgcg	1620
ccactccttc	tgccgaggtg	ctccaccaag	tgcgccacaa	agcctggaac	tgatcacctg	1680
gccggacgat	cgggttcgcc	cccgaattcga	tttggagtc	tagacatggg	caagatgcgc	1740
cgtaaaagac	aggtcgggtgc	aggttaactgc	tttctttccc	cctcgtctca	gctattgaag	1800
agacgattcg	gcaaaaaaaa	tggccgtcgt	cctccaaaat	cgaaggggct	tcgctccgta	1860
tacatttgta	gctcttggtg	ggaaaagctc	cgttgcatcc	actgcgatgt	ggtctcacct	1920
atcacaagca	ttcctgtatg	ctcgtctgcc	actactgcgg	tacagcagac	cccttcgcg	1980
catctgtccc	tcctgcaagc	gggcatcggc	gtaggagagc	cgagcagcct	gcaacctgtg	2040
gggtatggag	ccgaaagata	gaggaagagc	ttaaaagagc	tttcccacc	gtctctatcc	2100

tcagaatgac	agcgatatgg	ccatgagccg	aacgaagatg	gacgaagctc	tggcgctctg	2160
gaagcgaaag	aggtggatat	acttggtggc	acgcaactga	tcaagggcaa	gtctataacg	2220
aacatgtagg	tcttgtagcc	gtcaccacgc	tgggaagcata	ttgggtttcc	cggatttccg	2280
cgcctacgaa	cgagcttata	agcactctat	cagctcatgc	ttaggagcgg	agcctcccgt	2340
ctatacatat	aacgaacaat	ccggccaact	cctttccgga	tttattgcga	gaagggtgatt	2400
aaaggctttt	atcggaatac	aattggagga	aaggcaaatg	cttttcttcc	accttttagc	2460
cggctgatac	gaatcgagtt	cagagcaggc	gaagagagct	cgtggagcga	atcgcttccg	2520
actatgccgc	ctctttggcc	gcccattctc	ggagcagagt	ctctcccccg	t	2571

(2) INFORMATION FOR SEQ ID NO:902

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 584 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...584

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:902

gggaaggcat	tttctctgtg	ttcgatgcgt	ttgcaggaac	catcagcacc	aaaactacag	60
atataacatc	gaagcgtacc	ggcagatcga	tggcgtaacta	cgcacatagt	gatgcgcaga	120
ttcggaaatc	agtcgccgct	tgcgtgctcc	acagcctctt	cggggggccag	tagaaagcct	180
tcggtacgag	tcttgattcc	acaacgacca	gttctcttga	cgtggatgcc	acgatatcca	240
gctcgagccg	ccccgactgc	cagttcaggg	cttctatctg	atagccttgc	tgccgaggtg	300
tttcagcgcg	atctcttcgc	cttggcgctcc	gcggtcgtta	tgacggccat	tgctactgtc	360
gagacctttt	ttttcggtcc	ggctgaggat	gagctctcta	tgtgccgttg	ttttttctct	420
tccaggatct	taccacacgc	atgaatatgc	cggtttcctc	cacctctccg	aaagactcat	480
tcaactgcagt	ccgaaaacac	gcatctccgg	agacaaagct	atatatgcac	ttacgagana	540
gggatattga	taccagcctt	gcgcacttct	atattgagag	tctt		584

(2) INFORMATION FOR SEQ ID NO:903

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1075 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1075

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:903

cgacgtagct	tgtgtgaatg	gcgatttcct	gtacaacgta	ccatgtttcc	agaagccctg	60
atgcgtagcac	aaaaagatgg	taaaccgaca	ggtactgtgc	tatcatagcg	tctacgatca	120
accagtcttg	ggcttctcct	atgcgcggca	ggatgagatg	aacgaaattc	tgtgcgaaaa	180
acacccgaac	aacatcagcg	tactttcgga	ggtgtcacca	tgaacggtat	gtttgctatg	240
gtggaaagta	taaaaaggat	ggtgagaaga	tgctcgacac	atggactgta	ttcgcgaccc	300
ctcgctgctc	gttcgtacac	ttgtcccgc	caaaatgcag	gttcggctcc	ggcaaatatc	360
tctgcctctg	cacagacatt	cgaagtagct	tggactataa	cggtgctatt	gctacgctct	420
ctgacgatgg	tgatatggtc	gcaactgctat	cgtgaaagac	ggtaaggcta	tcatacaatt	480
aaatgagagt	tcgctgatga	aacgaacttg	acgctcaccg	tagtaggata	caataaggta	540
ctgtgataaa	ggatgtgaaa	gtggaaggta	catctattgc	cgacgtagca	atgataagcc	600
ttatactgta	gctgtatcag	gtaagacgat	aactgtaaaa	gtcctgctgc	cgggctgacg	660
atcttcgata	tgaacggccg	tcgtgtgcta	ctgctaaaaa	ccgcatggta	ttcgaagcac	720
aaaacggcgt	gtatgcgttc	gcatacgctac	tgaaggcaag	acgtatacag	aaaaggttat	780
agtgagtaat	tcacactgca	attctctaat	aagggtgtg	ccgaggaatc	catcggcaca	840
gccctttttg	aattattggc	actacgcaa	gagactgttg	agaatcaggc	gagaaaagag	900
gatgctaaag	gtcgtaaata	acggctcaaa	ccaatggccc	gttcattctca	taccatgggtg	960
cgcaagggct	acagaccata	acttgagatt	atgtgccata	gtgcttcgtt	ttagggtggag	1020
atatggtctt	tattgaggaa	aaatattctg	gttatgagag	agaaatcttt	ttttg	1075

(2) INFORMATION FOR SEQ ID NO:904

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 723 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...723

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:904

cccaatccgt	cgctccgtta	agaatagagt	tgatctgccc	catcggtaga	acctgtactt	60
ccgtgtcgaa	atcgaatttc	ttgataaaga	tgttattgct	ctgacgaacg	ctaccatccg	120
gccatcgggg	ctgaatgtag	ggatcatact	ttgccgacat	gctcgtcag	tggttttacc	180
aaattgcggc	gaacatatag	tcgtagacgg	cagcacgata	cgaatgccga	tagatgctct	240
ccataccgta	aagagcaaaa	tatgatgtcc	ggtactgctt	acctcgtagt	tctgatttgt	300
ttaaacgggc	attcgcgtgc	tcgttcgaca	ctgaagagcg	tattaccgcc	ttgccggagg	360
cataattgta	gcgaatgata	gccgttcgct	caggttcatc	tccgtatagt	gttctccatc	420
cggcatggag	cgtattccac	tcctgcactg	cgagcataaa	acattccgct	cgtgatttct	480
ttcaaattcta	gggtttgttc	cccgtctgag	ccatggcaca	catggttacg	atgccaaagt	540
cagaattatt	accggctctt	tcataagaaa	gtgtattgta	tcttctttta	gtggtttatt	600
gcttagcggt	tcaatgcacg	atccatctct	cggcgatata	tcgctctttg	atggatgcac	660
gtttgtcata	attgnttttt	ccctcggcca	atccgatttg	cagcttggcc	aatccctttc	720
atg						723

(2) INFORMATION FOR SEQ ID NO:905

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1306 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1306

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:905

gattttcaac	ggtttgctct	tcggcgacag	cctgatggat	tcctcttcgc	ggagaatgcc	60
atggaaggct	atgcacagat	gctgggagaa	gactatcgtc	taacaatgcc	gaagccaatc	120
tgcaagggct	tccttctgac	cttttggtta	tatctacaag	caggaaaata	ccatcgctta	180
ttgcgatacg	ggattgtctc	cacgcgcata	aatacatata	cttacgaagg	cgggtgcacat	240
acggaaatac	agtccgggtt	gccaacatcc	ttcgcaccac	cggcaagggtg	ctcgagagcg	300
agatatattc	aagatcgact	atgcggaaaag	gctgtccgca	ctctcatagg	acaattggtg	360
cacgatttcg	gcaagaccac	acctgccgaa	ttgatgcaat	aggtttcttc	aacgcagaag	420
aaatacagcc	caatggcaat	ttatgatcga	tgacaaagggt	ctcacatact	gtttcaatga	480
gtatcagata	ctgcttatgc	cagagggtgct	gtctatgtcc	gtctcggata	tgacgtattg	540
ttcctttgct	aagggatgat	tccccactaa	agcgttactt	gccgtagccc	ctccttttgc	600
ttcgaccgat	atgaccaata	tgcaggagat	acccgaaagc	cgctgtccca	accggcaggt	660
accgagatca	tcgagaaata	cttccccact	tgtccgaacg	gcaacgcgaa	caattcgagc	720
aaatgggagg	gctgtcacgc	attggaatgc	cctcatcaat	gtcatttccc	gaaaggatat	780
agacatttgt	atctgcacca	tgtgttgcat	tctttgggga	tagctcgcat	gctaacttca	840
aacccggcac	aagtgtattg	gatttgggta	cgggtggagg	ttccccggta	ttccactggc	900
gattttgttc	cctcaagtct	ctttcctgct	gtggacagca	tcggcaaaaa	ggtgaaagtg	960
gcttcggccg	tagctgaagc	ttggggcctt	acaatgtgcg	cactatgcac	tgtcgggcag	1020
aaagcatagt	gagaaattcg	acttcatagt	cagccgtgca	gtaatgaagc	tgagcgaatg	1080
gccaaagatct	gcaggaaact	catccggcgt	gaagatcagc	naaatgcctc	ccgaacgggc	1140
ttatctgtct	caagggtggc	gagcttcaag	cacgagtact	gccattccgg	aacaaggcna	1200
tgacagagga	gctatggccg	accttaagaa	gagtatttca	aacataaaaag	tgtctactac	1260
ctctatgaca	cgacgaagta	aagatgtcac	ctcaattcgt	gcagaa		1306

(2) INFORMATION FOR SEQ ID NO:906

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 603 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...603

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:906

```
ggaacttcgt ctcctgatcg atagcggacg ttatgacagg gctttgccct agcccaacag      60
ttgggtggcca aaaatccaaa gcatgccgat aataactaat gctagggctt nttctgtaca      120
nggctgaacg ctacgaagaa gctattgtcc ccttcgggtg gccgtaagcc ggcgaggatga      180
tgcctatgag atgttgcgga tgcttatgcc aaagagtatt tcttctccga agctcttgct      240
gcactgaaaa acagaagggt actcttgtga agaaaaaaca ggaaacagtc tccaagatgc      300
cggaatagac cgtatgcgac gagctgtgcg cttactggac agaccgaatg ggtggagggtg      360
atagacagcg tacggacgaa taaagccgat ctctgtcggc ctacaatctc atagccgata      420
acggtcggct cgaatgggtg aaggaaacca aggggaggcg acttcttttg tcaatgggcg      480
cggcgaccat ccatcatgac ggagaaaggt gaggatggag tttncagcct gcatgaagnn      540
nncggatcgg tggcaaatgg ggcaatgcga tccccctcga aaaactcatt ccgattcaa      600
tga                                          603
```

(2) INFORMATION FOR SEQ ID NO:907

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 595 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:907

```
acagagggag ttcggaaccc tctccttcgt tctccatttg catcttggca tgagagcata      60
taagagagtt tgagctatgg ccgtcggatg ttttttgctt ttcctgctat cgggtggttg      120
aacataagat cccatgagcc aagctcttgg tggtatctcc acttttgtag tccactatgc      180
gccgacattc ctcattaact catcaatgcg gtctatgatt ccgtgtaacc gaacccggct      240
accatgctaa gggagaagct gcctttgact ctgcgctccg agtctatgta gcgaagggag      300
ccaatgattt gtnatgctcc aagatccgcc gtacatactt ctcatcatga tgcaataaag      360
atgattcaat cccgacaaaag ctccctgtgt atggccgata ggagatatcc ttccgtgtat      420
gcttgcccta ctatcctcgc gtagttgcat tcttcggatc caaccaccga gataaaatat      480
ccgaagaaac atcccaccac cgcaacaagg cttgtagatc aacttcatgg aacgatgcac      540
acggaccgaa atcattggcg gccatcagtt catcggaagc attctctccg tatcc          595
```

(2) INFORMATION FOR SEQ ID NO:908

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1072 base pairs

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1072

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:908

ttgcaaaagg	agctattcaa	aaaaacacga	accggaaatg	ctccgattgg	gcgcgtattc	60
cctgaaaaag	tggcgcgaga	atTTTTtctg	tgtggcgtag	aattttttgc	ttcccacgcc	120
aaaataaaaa	agtttacgaa	ccgcgtttga	ggagtagcaa	acgggaaaaat	tttggagcct	180
aaaccaattc	ggttatatag	tacatgttcc	tgatcttctt	ttctgaaaag	gcttgatagg	240
attgaggaac	tgtttctttt	ttcttttgc	ttgattcggc	tgtagtgaa	caataaaaaga	300
gaaaaagaag	aagcctcttg	ccgagacaac	cgagcgggtc	ttgcagaggc	ttccttatgt	360
attggtgcaa	agtgcaccca	tggagtctct	aaaccgagat	tctacaatat	cccagtcaac	420
gatactccaa	agatctttga	gtggtcggca	cgacgattct	ggtaagtcag	ataatatg	480
tgctcccata	gtcgaatccg	agcaaaggat	tcaacccttt	gcgcacggga	ttgccggcat	540
gggttccttc	tcgatggaca	gtttgccatt	ggcatcggat	gcaagccaac	ccagcccga	600
ccaaagaggg	tggtagcggc	tgtgttgaa	tcctcttgaa	cttttcgaat	gagccgaatt	660
gtttgtcgat	agcttcccc	agtttgcttt	cggtgctcct	cccttgcccc	gacggaactg	720
agtgaatatg	agatttggtt	gagggtttgg	ccggcattgt	tgaagatacc	gccttcgctc	780
tttttacgat	ggtattcaag	tcagcgtttt	caaattccgt	gccgatgatg	agctattgag	840
gttggtccaca	taggtcttca	ggtgcttacc	gtgggtggaat	tcactgtttc	tttgctgata	900
acaggagcca	gtgcatcgac	cgcataaggc	aggaaatgag	ttcgtgagtc	ataacgtctg	960
atTTtattgt	aattaagtct	ttaataattt	gtatcggagc	agtgtaaaac	cgacaccgac	1020
aatttttaac	attataagaa	catgatgaac	ggaaaaaggt	cgaatcttgg	tc	1072

(2) INFORMATION FOR SEQ ID NO:909

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1010 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1010

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:909

ggctcaagag	attctggcca	agatggataa	cagcctgccg	cgtctggcca	atgcgacatg	60
acaagagctg	accggtagct	tccgaggtat	gggaccggaa	aagcagtcac	cgtgatggca	120
gcaatggaac	tgtcccgcgc	tatccctcgc	aagagatgcc	ccgcagagaa	tccattaccg	180
atagtcgaat	ggcctacgaa	ctataagccc	atttctcaca	gacctgccgc	aggaagaaat	240
gtgggggttac	tcctcaacca	aagcggaaag	ataatcagca	tggagaacct	tagcgaggag	300
gtgtatcgga	gacttcggcc	gatgtccgct	tgatcatgca	caagccgtct	ctcatcttgc	360
ctcggcaatc	attctggcac	acaatcatcc	ttaggaacgg	tacgccaag	tgaacaggat	420
attcagctta	ctcaaagggt	gaaaaggctg	ccacattgct	cggatttcga	ctgaacgacc	480
atctgatcat	ggtgacgatg	gggcatattt	cagtttcgct	gacgaaggcc	ttctctgatt	540
ttctctgaat	ccatacaagt	aaatagagag	tcggactctt	tcttcttggt	gaaaccgatg	600
agaaatcaac	caccggaaca	aaaaagccgg	gtcatccttt	atatcgccgc	atagcaagag	660
taccgggtgt	cgcataggcg	acatttaggc	agatagcagc	ttctactttt	gtgtcatcaa	720
agaacaatga	tcgataacat	aagaaggaga	ctcgacaatg	gaaaagaaaa	tgttttgcta	780
tcaagccagg	aaacagccgg	caataaggga	tgtatcctca	aagggtatgc	cgtaggactt	840
tagtacagct	aatctgatgg	attgctcgtc	tttaacctca	aagtattgcc	atcataatga	900
cttctatgag	gcgtgccgga	gtgaaagccg	aaccgaaagg	ctgcaaggcg	atcatggaat	960
ctctattgcc	acaataccaa	gccaaactga	ctactctcca	tagccaacgt		1010

(2) INFORMATION FOR SEQ ID NO:910

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1274 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1274

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:910

gaatcgacta	ctctctattg	attaaggaag	ggctttttgt	actttttggcg	acagaaacga	60
taaataactt	cgaaacgatg	accaactcca	actccttaac	gagagactac	agacagcgga	120
ctcattcttc	ctgatggccg	gcccctggcc	atagagagcg	aagatatggc	actgcgcat	180
gcagagcgaa	tagtaggggtg	acttcccgac	tgggcattcc	gtatatattc	aagggatcgt	240
accgcaggcc	aaccgctcgc	gtatagattc	cttcaccggc	ataggcgacg	aaaagcactt	300
cgcattcttg	gcaaggtagg	ccgggagttc	gggtgtccga	cgggacggac	atacatgaga	360
cacacgaagc	ggctatggct	gccgagtacg	tgatgtactc	cagataccgg	ctttcctctg	420
ccggcagacg	gatctgatcg	tgcggcaagc	ctacaccggg	cgaatcgta	atgtgaagaa	480
agggcagttc	tctcggcgaa	gccatggctt	tcgtggcacg	aaagtgcgtg	gacagcggca	540
cagccaagtg	attctgaccg	agcgtggcaa	taccttcggc	tacacggatt	ggtggtggac	600
taccggaata	ttccggcaat	gcgttcgctg	ggctttccgt	agtaatggac	gtgactcact	660
ccctccagca	acccaatcag	ggtagtgcgt	gacgggggga	aaacccgaac	tgatagagac	720
catcgcgaa	gctgcatagc	cgtagggtgc	gacgggcttt	tcatcgaaac	gcatcccgat	780
cctgttcggc	caaaagcgat	ggagccaaca	tgctccgact	ggatttgctc	gaaggctgct	840
cacgaagctg	atgcgcatac	gggcagcgat	cagggaattga	gctgcaagta	accgtcttat	900
cggccgatta	cacatatgtg	aggaaggctc	ttcaggaacc	gaaagaaata	tgatcgagga	960
ggaaacgagg	ctgattcgct	ctcttagaaa	tcccgcacatt	atgtccccaa	ccggcgaaact	1020
cctccttcct	aacaagagtc	gcagcatccc	tctcttggtc	gtacataaat	aacttgctact	1080
ttgtgcaact	ataaaaaaga	atcaaatact	attccccctt	tatggaataa	aaaagactac	1140
acgtatcgaa	agccgatctt	atcggagaac	gcgagaaccc	ggccatattc	tatatggcgt	1200

acagacgctg cgtggatatag aaaactcccc atcagcaatt ttcattctgaa cgattacccc 1260
ctgtttatca atgg 1274

(2) INFORMATION FOR SEQ ID NO:911

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 557 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...557

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:911

tgcgctatgt aatggagcag attctctttg agttgtgagc gcagttccct atttcttcgg	60
acgggatttg ctctattatt tcccaagcgg attcttcacc tgacggctga gaaaatccgt	120
gccaagatgc cgttcataga acctctgctc tccggagaag cccagggtcgg aagggtgtacg	180
ccattggtga catgtctaca tgcagctctt cggcaaagaa gccggggccat acgggagcga	240
acatcttcgc gagactactc catgcagata gctgactcca ttggcctcct gacagtgttg	300
agtgcaaaga cactcatgga gaacttttcg ttcgagcccg gtgcgttcgt cccatgtcga	360
tgaactcctg ccagctgatg ccaagtctgc gagaaaatgt cccatgtaac gccccaaaag	420
ctcttcacgc aagtagtcat gcctgccggt acaggggtgt gaaccgtgta gagcgaggag	480
gaacgaacag ttcaanggca atatcgaaac tcaatccctt tggttcacat agtcnggccg	540
acgttgagca ttgatca	557

(2) INFORMATION FOR SEQ ID NO:912

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 881 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...881

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:912 ;

caaagatacg	gtccatcgct	tggtgcatga	agaagaagat	ggccttccc	ccttattata	60
gatgtatatg	gacatacggc	ctnatgcagg	cacacagcta	ggtatgccnc	cacgcacgan	120
cggatatagc	gaaggctctt	atagcgagac	tgcaggcttg	gtagatgccg	tttattacaa	180
gtcggacagt	actctacatt	caaagccgga	ctggaatcgg	ccgatggctt	cctgacgggt	240
tcagccaagc	cgaagcagag	tacgaaaacg	gacttctctt	cctgcccga	tggacaaaagg	300
acagaagacg	gggttcttta	tcgaccagcg	agagaacagg	gcctgctgga	ggagtatgcc	360
tccggacgta	aggtgctcaa	tatgttctgc	taagcgggtg	tttctccctg	tatgcaatga	420
gaggaggagc	atacaaggta	cctcgggtgga	tagctcggcc	agagccgtgc	atctgttgga	480
gaaaaatatg	cactgaattt	tgccggagac	gatcgtcacg	aatcttatgc	cgccgatgct	540
tccatttcct	tgacgagatg	gctgtcggag	cttatgatct	gatcgtacgg	atccaccggc	600
ttttgccaaa	catcgcaaa	tgctgcgcaa	tgcgctgtag	gttaccgcaa	actgaatgcg	660
gtagcttttc	gcaagattgc	tccgggggcg	tgctcttcac	cttcagctgt	tcgcaagcgg	720
tcagtcggga	ggaatccgtt	tggcggtctt	taccgcagca	gcacgcggcg	gcagaaaagg	780
gcgatactgc	atcagcttac	ccaacctggc	cgatcacccc	atcaacatct	atctccggaa	840
ggcgaatacc	tggaagggtc	tggtctctac	gtagaatact	a		881

(2) INFORMATION FOR SEQ ID NO:913

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 855 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...855

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:913

gggcaaaaac	attcaataca	atgacgatag	aacaattcaa	tttcgccgga	agaaaagcctt	60
cgtgcgcgtc	gatttcaacg	ttccctcga	tgacaactta	agatcaccca	cgacaccgcg	120
atccgcgcag	ccctccccac	tctccgcaga	tcatagccga	cggcgggtatg	accatcatcg	180
gctctcatct	gggacgcccc	aaggcgtagc	accggagttc	tccctccggc	atatacctgcc	240
gcacgatccg	aactgctcgg	cgtggatgtc	ctctttgccg	atgactgcat	gggaccgatg	300
ccatggacaa	agcggccaag	ctcaaagccg	gccaaagtgt	gctctcgaaa	atctccgctt	360
ctatgccgag	gaggaaggta	agccgcgcgg	acctccgacg	atgcttcgga	cgaagaaaaa	420
gccgcagcga	agaaagccgt	caggctgctc	agaaagagtt	tacgcaaaaag	ctggcttcca	480
tggccgactg	tacgtgaacg	atgctttcgg	cacagcgcac	cgggcacatg	cttccacaga	540
ctgatcgtg	actacttcga	ccgagaccac	aaaatgttcg	gctatctgtg	gagaaagaag	600
taaaagccgt	agaaagagtg	ctgcacgaca	tcaagcgccg	ttcaccgcca	tcattggagg	660
ctccaaggta	tcgaccaaga	tagaaacatc	gagaacctac	tcaacaaagt	ggataaacctg	720
atcctgaccg	gcggatgacc	tatactttca	caaagcgggc	aggcggtcgg	ataggcctct	780
ccatgtggaa	gacgacaagc	tggatttggc	tcgcgacatc	gtgaagaaaag	cagcgaaggg	840
gcgtcaatct	gatac					855

(2) INFORMATION FOR SEQ ID NO:914

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 280 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...280

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:914

ttgccgctat	gaaaggactg	gcctctgtcc	ttgaggctga	agtactccgg	aatagcaccg	60
ataaatatcga	ttgccacgaa	tagaatcacg	aaggagccat	gatctctttc	aggtcgataa	120
ggctcaaatac	ttgtaatact	ttgtctaaaa	atccatcggt	tctgatttgt	ttgatagtta	180
aggttggaag	gtccgggtgg	tgtcacgatac	ttgacagtcg	caaaattaac	gtttttcgcc	240
ctatcaaaga	taaccatcgg	cgaaaaaagg	tactgccggc			280

(2) INFORMATION FOR SEQ ID NO:915

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 623 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:915

gtactcagcc	ccgtcgtaca	ggaaccgaga	aaatggtgca	acgtacagcg	gacgacctgc	60
aggcggttgca	actcaaaaaga	gaccggctgg	aagaggaacc	tgtaaacggg	acaagtcgag	120
agcctatttg	gtggatgacg	aagcgtgaat	aacaagatcg	aagagatggg	ttttatcggc	180
ccggaagatg	cgattacctg	gccggcatgt	atgccgaacg	tacggcgttc	aacgccaaagc	240
gctgggttata	aaaaagggtt	atcaactgtt	ggaactgctc	tttcatgccg	tcagctggtc	300
atcgacacgc	tccgcacatt	ctttctgatac	gtgctgtcca	tccggggccg	atcgtgttcg	360
gtatcgcccg	atgggacgca	ctcagcggat	cgtgacagcc	tggttcagcc	gctacatctc	420
cgtctatctc	tggctgccgg	tagcagtatt	ctgacagcac	tgctcacgaa	gatacagatc	480
ctgatgctca	caaggagatt	gcccagttgc	aagacgtgaa	ctatatgccc	gattcgggaa	540
ctggtactac	atcgtcttct	tcctgatcgg	cattctcggt	ttcttcaggt	accgactgtt	600
tcgggatgga	tcatcgaagc	ggg				623

(2) INFORMATION FOR SEQ ID NO:916

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 718 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...718

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:916

gtggaaggat	atcagaagat	tgtcaaatta	tttctttgat	gatcggaatg	cgttctgtcc	60
gatattgcaa	tcaagcaata	tgaatttgca	ggaccacgag	cttacttcaa	ttagcggatc	120
acagagcgag	tgcaaaggaa	gagtcaaata	catcccggat	ccgattgctt	tttcttatac	180
ctttcctgaa	aagtggaaaa	aagacctgtt	caaaaagctgg	tagaaaagca	ttggagagac	240
gaactctttt	agtacgagca	cccactgggtg	ctggaaaaac	ggatgcagca	ctctgtgggc	300
ttctcatcaa	atcaaacaca	gaaaagcaga	ccgcttgatt	attctatgcc	cactcgtttt	360
acaacaaatg	cactagctct	aagcgtatct	tcaccctttc	ttctacaggc	ctgtatcatt	420
ccagtgcatt	gacacagaat	tcagtagcaa	aatagacaac	ggggaaatag	ctttagagca	480
ggcaagatac	atcataacca	agctcgctta	ctacagaccc	ctataacggt	atgcaccatg	540
atcatctcct	ctcttcattg	actctttgtg	acgaggaaca	tcagaccata	cttttgcaat	600
ggcaaatgca	tgtctcggta	ttgatgaggc	agatttcatt	atcaatttac	acaagctaata	660
atattagtag	tactagaggg	tctaaatatg	gaaagtgccg	atattgctga	tgagtggc	718

(2) INFORMATION FOR SEQ ID NO:917

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 541 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...541

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:917

aacggatcac	ccggcgcagg	atcgggggtcg	tattgagtgc	cggagcagcc	tctatctgct	60
gaacgnatgg	atactgagcc	tgccgggtcgg	catagacctc	gggctgtctg	ctacctcctt	120
acactgagcg	caggatttat	ctgtctgtga	tggccgggtc	ctggatcagc	cgctgttga	180

agcacaacct	gatggagatg	tattcaatgt	ggagaatgaa	agtttcatgc	aggaaacccg	240
tctgagacga	acgagtattc	ggtgaatctc	ccgactcgtt	tttattaccg	gaaaagtggc	300
gcgacggttg	gatcaatgtc	gtgaatcctt	tccgcgcgag	catgtgctcg	gtacgccggg	360
gtcgggaaaa	tcctacgcga	tcgtaaataa	ctcattaagc	aacanatcga	gaagggattt	420
gccatgtata	tttatgacta	taattccccg	acctttcccc	agatcgctta	caaccatctt	480
gcttcagaca	cggaagggcg	tattgaagtg	cagcccgaan	gttttaccgt	aatcaacttc	540
g						541

(2) INFORMATION FOR SEQ ID NO:918

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1429 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1429

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:918

aaatagtcac	atattttcgcg	gcctgtcatt	ttgcantggt	gcaaagaaat	tctggtacgg	60
aatagatggc	ggaacatgtg	gtacatatag	atcggaatcg	ccgggcaaat	ccgtattgat	120
ggagagagga	gcttgcaaat	gatatatcgc	gccggacttc	gctcagcatc	acatgatgaa	180
tcagatccat	gaaagggacg	ggccgaacag	agcgtctgca	gaacttattt	cgggtggaaga	240
aacaccatag	gctcgttcac	aaaccggcga	acggcagctt	catcggagga	gaaagcgcca	300
taaaggctga	atcggggagta	agccgcgata	tgtccgtcaa	gccccctcca	ctcttttatg	360
cagtaccttg	tctcctttgc	gagcgagact	gategcacat	cggacacttt	gtccaaatga	420
ttggccggat	tcagtacgag	acggagtcgg	cttctgctcc	tttcaccttc	cggctgtact	480
cctgatgata	tgtcccagca	atagtacatc	tatgcctgcc	acttcacgag	cgagagtcaa	540
ccggcatcct	cgagatagtt	cgaattgtca	ttctccctgc	cggaatgcgt	acgcatacaa	600
caaaatcagg	tttttccttt	tggatcacaa	acgggtaccag	tacttggccg	attcgattat	660
atcgtcgaat	cgcatctccc	tcacaaactt	tgcggcagcc	actcaggaat	agctggagtt	720
ataaagccca	acagaccacc	ctcagcccgt	tccgatcgaa	gaccttataa	ggagcccaat	780
atggttgccg	gtctcggtgt	cgatagcggt	cgccgccaaag	aaagggaagt	cgcgccgggt	840
acccatttgt	catagacggc	atggccgggtc	tcgatgtcgt	gatgcccggg	atggcggcgt	900
catagcgcaa	gtagtccatc	gcacggggaga	aagatgagta	cccgtcgtgt	ccatgtagtt	960
ataatagtag	gccgtaggat	gccctgcaat	acgtcgccac	catcgaagag	cagcaactcc	1020
gatctgtcca	ccgggcagct	ttcagaaaag	aagccaagcg	cgacattcca	cccgaagtgg	1080
tcttaaagct	ttgaaatcag	tggggaatac	attcccgtga	agatccgagt	gtggataata	1140
cgaagcgaat	gtccttgcc	gcttgcacat	ccaccgggag	aaacgtcgcc	agcgggaagca	1200
ggacggacag	caaaccgaaa	agtctttctt	cataccgtgc	aatctgtagt	attcctaaaa	1260
gtctatttca	cctgctacct	gcagcaactt	cagccgccgg	cataatgacc	ctgagcgaac	1320
catcgcatcc	tctgcccga	gaatcatgcc	ctcggactcg	atacctttca	gctgcgcggc	1380
ggcaaattgg	cgataaagca	tacctgcttg	cctaccagct	ctccggagc		1429

(2) INFORMATION FOR SEQ ID NO:919

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 443 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...443

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:919

gccaatcaga	acaatcctta	cttccgaccg	aatcgagagt	ttgcctttct	cgccatacaa	60
cggacgaaat	acttcttgtc	gcagccaatt	ttgccccaac	gaagcagaaa	tcagggtgat	120
tattccccga	cacgcctttc	agacgatcag	ataaaggaca	atgcagcttt	cctgctgacc	180
gatatgctct	ccggagaaac	agcatcggct	gtctcaccca	atacgcccc	taccgctac	240
atcttcggcc	tacggctatg	ccctgcacgc	cttccgtccg	ctttagacgg	atcagccaat	300
tctcctatag	ctctttcaac	gggtgcaaaa	aacaaacgag	ggttatcgaa	aagaatgaaa	360
catactcggt	cttataaaga	gaatcgatat	cttttgaagc	atatgatcag	taggaatttt	420
agttnttcca	aaatctgaaa	att				443

(2) INFORMATION FOR SEQ ID NO:920

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 952 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...952

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:920

gcttgggcgc	agtggacttt	acggtggcgc	tgcactacgt	attcgatacc	cctacgaccg	60
tatcgtctgg	gacgtgggac	atcaggctta	cagccataga	tcctgaccgg	ccggcgcgaa	120
gacttccgcc	atttgcgcca	atggggggca	tcagcgggtt	cccctcgcct	aaagaaagcg	180
aatacgacac	attcccgcgc	gacatgcttc	caactctatc	tcgcgagcac	ttggaatggc	240
tgtggttcgg	ctgccaagga	tgagaaacgg	aaggtcatag	ccgtcattgg	agacgttcca	300
tgacgggagg	tatggctttt	gaagggctga	acaatgcac	gtcttcccga	acaatctgct	360
gatcatcctc	aatgacaaca	acatgtccat	cgcaggaatg	tcggaggact	gaaccgctat	420
atggtggaca	tcctcactag	cagacgtata	atacgattcg	ttacgacctt	tataagggtc	480
tgcgaaaaat	aatctgatca	gcgagacgaa	cagaaaaaat	ctcctgcgct	tcaacaacac	540
ttcaaggcac	tactggcacg	cgagagcaat	ttattcgaag	gattcagctc	cgttatttcg	600

gccccgtcga	tggaataat	gtgctccgct	tggtggagta	ctcaatcaga	tcaaggatat	660
ggccgggcct	aagatcctgc	acctgcaacg	atcaaaggta	agggtacttc	tccggccgag	720
aagcaggcta	cgatcggcat	gcgccgggCG	aattcgacat	caaatcggga	gaacgtaaga	780
aagggagaac	aagcccagagc	cacccaagtt	tcaggatgtg	ttcgggcata	caccgtggag	840
ctggcggaca	gagacgagcg	tgtcgtcggg	gtcaccgccg	cttgccgaca	ggttgctcca	900
tgaccttcct	gatgaagaaa	taccgaata	ggcctatgac	gtgggtattg	cc	952

(2) INFORMATION FOR SEQ ID NO:921

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 445 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...445

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:921

gacgggtata	aacttcgatg	ctcttcccgga	atgtccgttc	gtccatggcc	ctgcttcaat	60
ggcagccaga	gcgacttccc	atgctcccggt	catttcgggt	cggcgatctt	tcgtccggcg	120
accagtttat	agacggaaag	accttttcg	tcgggataag	catcttcttc	tcccggcgga	180
tatatctctg	caggataatg	ntcggatgat	ggccgcacgt	gtggcaggcg	taccgatgcc	240
gcaacggcga	gggctttg	ggcttcttcg	tccgcaactt	cccgtccggc	gggtgtccatg	300
gcncgacagc	aacatggctt	cccgtataaa	ggggcttttg	gcttgtttga	tngntccngn	360
catttcgaaa	tccgaaaaca	tcgagccggg	ncgcctttcc	ttgccattcc	gggaaagctg	420
tccacaacgg	gtttcttcct	tnttc				445

(2) INFORMATION FOR SEQ ID NO:922

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1048 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1048

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:922

ccccctgcgt	atataccgag	atactggaca	aatgagacac	tgtgcaacac	aatagacagt	60
acaaaacaaa	aatatggcga	aatgacagcg	agcaaaatcc	aataaaaaaa	gtgtgtgagc	120
attgcaaaca	ggagtttata	gctttgagac	gactaccaag	tattgctcac	atagatgtaa	180
tagcagagcc	tacaaactca	aaaaagagaa	gagagggtac	gcagaacaga	actttctgaa	240
caagaaaaaa	ggtcagtgat	attatagaca	aaccttatct	ctccatctca	gaagtgggcg	300
attacttggg	attagtaggc	atacaatata	tagatatatc	taccagggaa	cttaaaggct	360
tataatttga	gttctcaacg	ctcaatcgtc	aacgtgaaga	cattgaacgg	atgttggcag	420
agcgacctta	tgagaaacga	cgcccagaga	tgcaatcgta	attacggaac	tatatacgac	480
agacgaggtg	gcgatatcca	caacatatct	cgatcttctc	tttttgcaat	agccaagcgg	540
agaatatccc	tcgaacttat	aacagaggca	agacctattg	gagcaaacgc	atatagatgc	600
ctattttgc	aaacaggctc	ctgcttctca	tatcgaaaat	ggtgtacagc	cgtggagata	660
caagaaagat	tcgatatgac	gctcacgccg	tttacaactt	catctctgat	cacaacatcc	720
ccagaaagaa	agtcagggtg	aaagctacta	ttccaccaa	catgtcgaag	cagctaaagg	780
agtgttgata	aggcagctcc	aagctactat	actgttcggg	aggctatgga	aaatttggc	840
ttactcgtga	ccagctctat	caatatacca	aacgttataa	tgtcctaaac	taaagcaagg	900
tcggaatgtc	ctcatttctc	agcaagaatt	gatgaagtcc	tcaaacctcc	cagcatcact	960
cgataagtta	tttgttgggtg	tatgggacac	cctcttatca	ccttattctt	ttgcaactga	1020
atcaataaaa	taaccctcta	atcaacgg				1048

(2) INFORMATION FOR SEQ ID NO:923

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 396 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...396

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:923

cttaaagaga	ccacggtttc	ttttcggaca	taaaaaagaa	ggcgatccaa	acatctgttc	60
tagctcgccc	tctctattaa	agttatttat	atccgatgag	cgacttattc	ttctgtctgt	120
ttaggagttt	cttctgcagg	agctgctcta	ctacaacgtc	tgcgctttta	cgcttacgag	180
aacggcgtgt	tttggtcctt	tcttcgctgc	ttcgccaagc	atattctcat	tgtagtcaac	240
aagctaataa	agcacatagc	agcattatct	cccagacgat	aaccggtctt	caagtacggg	300
tatatccacc	gggacgatct	gcaatcttag	cagcaacatc	tccaaaagtc	cttcaggcat	360
attatctgta	gtaagagagg	cgatcgcgag	aggcgt			396

(2) INFORMATION FOR SEQ ID NO:924

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 897 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...897
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:924

tccngctgtc	tcgctctcct	tcggggcctg	ttcttggctt	ggttacttgc	ataggcgtac	60
tgctgattcg	tttcgggtatt	cgcctccgtt	ccctcctggg	cttatttgcg	gtgccgaacg	120
ggcggagata	gaggggtgtac	ccgtttat	gtcctcgtg	taaggatgcc	gttcagcttc	180
tgtaggcgta	tttatctccg	accgatctgc	gctcataccc	ttctgtgaga	aatgttctta	240
tccataacaa	gaacataccc	gagcaacgca	ctttgtcgat	cttttgcg	ccgagtggca	300
tgcattgctgt	tttgggtcaa	tccgtttgct	tgggctttga	agccgatatg	cagcgcaatt	360
tggagttttt	ggccgatcgg	gctgtgctcc	tcgaggcgtg	agcagacgcg	aatatcaata	420
tgaattgttg	ggatttacgc	tgaggtcgcg	gccggacctc	tgtgtagttc	ttacaatata	480
aacgacttaa	agaaagaatc	agaatgatga	acaaaacgaa	atccaatcgt	gcggccggac	540
caggatatctt	gtcgcactcc	cgttggctgc	ccttatgctt	ctgagcggaa	atggctgtgg	600
gcgggcaatg	ccgtatccga	agtccgggaa	gtagtagaac	cgttgcgagc	gatcccggcc	660
ccttgtctga	tgctcctgac	atctcctgca	gcaggacgag	gacccgtgtg	gttccgagct	720
agatactcca	ccatcttccc	cgggggaatg	tccgaactga	tgcactttct	gagcaagaat	780
ttaagtatcc	ggaacaatct	gcaaagaaca	gcaccaagg	tcgagttgtg	gtccgtttat	840
tgtcgaaaaa	gacggcagac	tgactaacat	acaagtggaa	aaagcgtagc	acccgaa	897

(2) INFORMATION FOR SEQ ID NO:925

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 374 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...374
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:925

tggtcgaatt	ccatgtatcg	agactccctg	tcagatagcc	ggtgatgcgc	gcaagcgagc	60
tatccgatcg	ctgccgcata	caggacattt	gtcgtagaca	cacctttgaa	gccacagccc	120
ttacaggat	ccacaggatg	attaatcaac	catagccgat	gttttcatcc	ttcatcatct	180
tgacaatttt	gaggataccg	atacattctt	cttagcttcg	ccatccaact	ccacataagt	240
aatatgccac	cgccggtaat	agcatggaaa	ggagcctcgc	acttgatctt	ttcactatac	300
ctatcgattc	gcgaacatcc	acatggaaag	aattgacgta	ataatgcaaa	atccgttacc	360
ccggggataa	tccc					374

(2) INFORMATION FOR SEQ ID NO:926

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:926

tattcatcca	gataatagct	cggataattg	cggttgcatc	cctgcacatt	tccttgtgtt	60
cgggaacatt	ccctgattcg	tagtcttcgt	cttcgacagg	atgagacgat	tctcgtaagc	120
gaaattatgg	gttgccataa	ctgtttatgt	tttgtcaggg	ttagaaaatg	tttctctatg	180
gctgcattca	gcagtgatca	tcgtcgtatt	cgtcctgaga	gaggctgatg	ctttccgcat	240
ctttgcatag	cagctttctg	cgacataatt	ttcccaactg	tacaggcgta	cataccgttt	300
cccttattca	ccgaaaccac	aggcacggtc	ttaaatccga	catgcacaac	agcagttcgg	360
tcaattcaca	ggcacgattt	ccgtattcgc	ttccacgata	agaatggaca	cgtccgaacc	420
cgtttttatg	cggtaatgcg	agaggagtta	tttcgtttcc	tgcgatccat	tgagtgattt	480
aatctttctt	ttccataatg	ctgacatttt	ttttgcgtct	aaagctcgga	gtgtgccgat	540
tcgtttcgtg	ggctgttcaa	ggtggccgga	gggtatatgt	caaggcttcc	gaaaaaatac	600
gacttggaac	gaaagtggaa	atgtgg				626

(2) INFORMATION FOR SEQ ID NO:927

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 497 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:927

tgagacaaaa acggattgcc gaatgtattg gtgacctgaa gggctgctcc aatagcatgg 60

caaagaggaa	gaagatagcc	atacgacgtt	ggcggaaaagg	acaaaagcat	ccagccccaa	120
gacggcaagc	accccccttct	tcttgtttct	tttgcaggag	ggcagtgagg	caaggtaaaa	180
gcatacaatc	ccaatgaagg	gaagccaccg	cactgacata	gaattgcata	ctgctcatta	240
cccattcgcat	atatcgacgg	tccacatggc	caaaatgaag	ccgacagtac	cccaacgcgt	300
ataggaggaa	attcgcgcac	tatatccata	ccggctttct	ccaagcagta	taggctatcg	360
aattgggtgag	agctagggtg	ggcatatagc	tctgcagagc	aggagcataa	cgggataaaa	420
aacggagtaa	ctactcagcg	tgaagcataa	ccagcaatat	ggctccgac	agatggcacg	480
ctcccaagag	tttgtgc					497

(2) INFORMATION FOR SEQ ID NO:928

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:928

acttcatcgc	cgtagcatag	gactcctttc	cctcttcttc	gccactttta	tcttggcgaa	60
gacgaaagga	tcgtaggcat	agcgaaaggc	ctgggtgaca	tcaccatgat	gatggccagc	120
ttgtagcacg	cgccatagat	accgagcgtg	ctttcccctc	cgccggatcg	tcgaaaagca	180
tgggaaagag	aatctttcgg	cctgattgtt	gaagctgccg	gccaagccca	acagcagaat	240
agggaagaat	aggccagcat	cttgccgaga	acgtccggac	gaaatacgcg	gccgcatgcc	300
gccaatgagg	aaaaagcatg	accatctgca	cgaggntgca	aataagttga	tgacgaacac	360
gtaccccaat	tcgtagtctg	ggcggtagaa	gcaticgatcc	actccggatg	taaggcataa	420
ataccgggga	cacagggang	agaaaaagat	cgtaaggacn	atgggtcanc	aggattgaat	480
gtca						484

(2) INFORMATION FOR SEQ ID NO:929

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 964 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...964

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:929

gggtctggaa	cgtctcacct	cgtagcgga	gctttatctt	ttggataaca	aatccgtaag	60
ctggagggtc	tggaacgtct	cacgtcctta	gcaacgctga	actatcgggt	aaccaaattcc	120
gtaagctgga	gggtctggaa	cgtctcagtc	cttagcaacg	cttgaactat	cgggtaacca	180
aatccgtaaa	ctagagggtct	ggaacgtctc	acttcgttaa	caaagcttcg	tctaagaagt	240
aaccaatcag	taaactagag	ggcctggata	gtctcacctc	gctaacaaaa	cttttctctc	300
cgataaccaa	atcagtaagc	tagagggtct	ggaacgtctc	acccgttagc	ggagctttat	360
cttttggata	accaaactag	taaactagag	ggctggaaacg	tctcacgtcc	ttagcaacgc	420
ttgaactatc	gggtaaccaa	accgtaagct	ggagggtctg	gaacgtctca	cgctcttagc	480
aacgcttgaa	tatcgggtaa	ccaaatccgt	aagctagagg	gtctggaacg	tctcacttct	540
taacaaagct	tcgtctaaga	agtaaccaa	tcagtaagct	agagggtcgg	aacgtctcac	600
gtccttagca	acgcttgaac	tatcgggtaa	ccaaatcgta	agctggagggg	tctggaacgt	660
ctcacgtcct	tagcaacgct	tgaacttcgg	gtaaccaa	cagtaagcta	gagggtctgg	720
aacgtctctc	ttcgtaacaa	agcttcgtct	aagaagtaac	cagatcagta	aactagaggg	780
cctgaacgtc	tcacctcgct	aacaaaactt	tctctctccg	ataaccaa	cagaagctag	840
agggtctgga	acgtctcacc	tcgttagcgg	agctttatct	ttggataacc	aatccgtaa	900
gcctggaggg	cctggaacgg	tcttacctng	tacaaagctt	tcgtctaaga	agtacccaaa	960
tcag						964

(2) INFORMATION FOR SEQ ID NO:930

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 136 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...136

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:930

tgtgcagaca	cttttaagat	aggctctgtaa	ttgtctcaga	gtatgaatcg	tcgcccgact	60
tccttaaaag	gaggctgggc	gacttcgttt	ttattattct	gtccggtaaa	cttgtaaga	120
ggagaccttt	gaaaaa					136

(2) INFORMATION FOR SEQ ID NO:931

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:931

gaattcttcc	ttttttaata	ttataaacia	ccagttcctg	tttggctgtg	tatctttttc	60
cttatcaatc	tcagacaaaa	gaatatattt	aaactgctgg	catctctgtt	tcttgataat	120
tcagtaaaaa	taggtttgtg	atattcgtac	tatctaaaaa	agattttatat	atctcatatg	180
cagtacatgt	cttaccaatc	cagctgctgc	ttctacaaca	acaagatgtg	caccttttct	240
attgatgttt	ctttgattac	agaaatgata	tcagaagtcc	catttatagc	atctctgcat	300
cttctttgtg	aatagagtaa	ggcatactga	tgtactggta	cttatgtcac	tgccgcaata	360
atgcttttact	tgattagtgg	gcaaattctg	tgatctccta	ttaatggcat	ttgcagtggg	420
ttgtgggtgtt	aaaaaaaaacc	ttaaacaat	aacctctctg	cttcttconat	aggatctgga	480
acct						484

(2) INFORMATION FOR SEQ ID NO:932

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1058 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1058

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:932

ggtaaccttg	attccatcgc	atgggatcgt	tggcaaaatg	accgttatca	tcagagcatg	60
tacttcagcc	ggtagccct	cggtagctaa	tatctcttat	tgagctgagc	ttttccggaa	120
agtatcaggc	ctatttcctg	atcgtaattt	gtagccacat	gcgaagattg	tccggcatac	180
tgtccatgtc	gaaacgcaa	tgggtgaata	ggctaaaatt	gtcggatttc	tgatcatctg	240
tgctaaagag	catagccctc	attatttcca	cgattagcta	cataaaaaata	tgcagagagc	300
cttctctctg	tgatgtgata	ccccctctcag	catctccttg	ccgtaaacgt	aatcgatgga	360
aatcttgtca	gatactgctg	tttgtcccat	tccaaggata	cctgtcgcaa	agccagccga	420
gccagactca	aagctcgctc	ttcgtaaccg	gagcagaatg	tccctgcatg	gcaatgccaa	480
agagcattac	atggctaaaa	gaaaactttt	tttcattgaa	ggtgatattc	cgaattatgg	540
agtttttgct	gtggctgccc	tatggggcat	tgtagaattt	gctgcattta	caaaagtgtt	600
tctgatgatg	tagtattagg	atcaggcaat	ctgaatgaaa	aagccggaat	ttatattcct	660
tccaatcctg	ccatttttaa	gagctgaacg	gctgcttccg	tgcttttggt	gccatgcttg	720
cccccggcac	gctctcggcc	tgaagcattg	tttccgtggt	aaggactccg	aaaatgactg	780
gtacaagccg	tcaatgttca	actgggtgat	tccctgtgtt	accccttggc	agaatagtcg	840
aagtgggggg	tgctgcctct	gactacacag	ccgatagcga	tcttgcatct	acttcatgct	900

gttcggcaag	gtatgcgctt	gcataggtaa	gtcgaaagtg	ccgggaacat	gctgtacgat	960
gatattgtca	gccgacacac	atgctccaaa	agggtatcga	tagccccctt	catcagtggc	1020
tctgtgatat	gtgattcctt	tcagcaacgg	caattcct			1058

(2) INFORMATION FOR SEQ ID NO:933

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1666 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1666

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:933

tagggaatat	ttattttttg	aaggaaatta	tgaatgtgta	attaaaatga	tcctcaactg	60
gttgatttgc	tatcaaaaac	actcccccaa	caaaacatgg	gtatttgggc	aacagcgaag	120
gttgggttac	actttacctt	gaagaaagtc	atgaatacaa	atcattatta	tatccgatat	180
ggatgtgcaa	taactcgtat	gataatcatg	tatcagagag	ggaaaggcta	actccaaaag	240
aattggattc	agcattgaaa	aagcggtttc	ctcttttagg	atccaagccc	aggacctttt	300
tccccaggat	caaaggcccc	tttctctttt	gtcaaaaaga	aagtggaaac	acaaaagaac	360
gaatatttct	ctccccacat	attgtcacga	aaacatgcac	gccccaaaag	tttggacaaa	420
agcatctaaa	tttcttgaaa	tgactattta	ggcaaagaca	atgaacgaga	aggcttactc	480
aaaaaagaca	tgtgagcatg	tctaataatcc	cgatatccgg	agaatacctg	acttttggca	540
aaaagatact	gggcgaggct	ctgcaaaaat	atctgttgaa	gaacaaacta	tggacttatt	600
actacactaa	cgcccttaaa	gcctgcattg	caagtccgaa	agataatttt	tgcatcattc	660
ctgatatccc	actcaatcaa	atggtcattt	catagctctc	tttgacaaaa	tgcaaatcac	720
tcattttatca	ggagagcaat	gttaggaaac	atagataata	aaggaattcc	tcatcgtcca	780
aaaactttcg	agggaatttc	cctaattcac	ccaaaagtga	cagaatggga	gcattgcggt	840
gttaggggct	ataggagaat	ttgccaaagca	tgcagaattt	tcactcttgc	tcaaaagggtg	900
ctagattcat	tgaaaggatc	aaccttgtat	cgattacata	cggcaatgca	attccattta	960
cgtttcatca	ttatataata	atctagcaaa	agaggggaaa	ctacactcta	tagtggatag	1020
cttatttttaa	agtcggctct	ataaaaaaga	aaaaagagtt	tatggggata	ccgattatac	1080
cgatttgact	ttttcaccaa	tcgtttttta	caatcattca	ataaggcgct	ttcgatgact	1140
tttttagctc	caagatagaa	tatccaaatc	aaatcaaata	ttattttcaa	tgttttttac	1200
caaaatggag	aaattaaaaa	ctgacttatt	gcatctgccc	agatatgggg	ttagttgggc	1260
tcaaccaagt	tgcaattttg	cagcaaaaaga	agaagccgat	tcatgaatct	ctccaggaaa	1320
tattttgaag	aaaaagctaa	attttttagtg	atgatggaga	gcagtattta	tgagcaaagc	1380
gaggagatgc	tctcattgct	caaatcctca	tttttagcagg	agattatcaa	agaatgaagc	1440
tccaaaagag	gcattgcttt	tcatggagaa	accattaccg	gagaaataga	tttgtctggt	1500
gcaaagaatc	ttctaattga	tacatgcgta	ttctgcagag	aatgagaaac	aacgagattt	1560
gaacagcgta	aaaacgatga	cgcattacca	tctgatataa	acattgatga	cttaacaaca	1620
cataatactt	catatatgga	aacaaaaaaa	ttgcaggagt	tttggt		1666

(2) INFORMATION FOR SEQ ID NO:934

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 510 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:934

gggttgcatc	gtaattacgg	gcacaagcat	ctcttcgagc	gatatgcctc	gtgctggaat	60
gtattgcat	agtattgtac	gtagtagttg	tagttattgg	gtaggcgaag	aagtcaccc	120
ctttcgtgaa	gatgaatttg	tccgagagtt	gttatggggc	agccctacac	ttgcaggatc	180
tttgatctcg	aatactcttt	cgggttgtag	tcgaggttct	tacctatatt	gtatctgagg	240
ttggtttggt	acttctgtct	ccgatcactt	tgacgggatt	cttcacctga	atagaccatg	300
gtcagtggtc	aataccactt	tataacccat	ttcggcaatg	ctgggaagag	attgtaggta	360
gtcgaatgct	tgaaccagct	tcttcgtcag	cggcgatagg	ctgcttcgtt	ggatgccagc	420
tctcgaatca	tcttgctatc	agtacgagca	tgcgacatca	tgtccaccga	aagttcagga	480
ctatcacatt	agttgggttc	tgcgacagtg				510

(2) INFORMATION FOR SEQ ID NO:935

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 549 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:935

acggcatcaa	acaaatcgag	ctacaggtcg	attctcggga	ctcacgtcca	ccggtgccat	60
gattactctg	gaagatggga	caaagatcgt	tacaaaaaca	ccggtatcag	tcgcacgaaa	120
gcttctcccg	gcctgttccg	actcatgaga	aagactatcc	gggcgtagaa	gttgctcgatc	180
tccgataata	aaaaccatct	tagtccgttt	cctctttgat	agaaagaggt	tattaacgaa	240
caacgaaaac	tatgaaccaa	acaacgaaaa	cactgtcgat	cattcttata	ggtagctgac	300
cttccttgtc	ggggcaagcg	caaaactcaa	cgtccccctt	tgtgggaccg	tgctggagga	360
ggtacctttc	tcccgaagaa	atcaaccttt	tcgcagacaa	cgtcagccct	tctttcaaag	420
cctatattga	attggcattc	accgaaggaa	accaaagcca	tgctcaccat	tccgaaatag	480
aaggggatggg	gaccaaacc	ggcagaatcg	aaagaaggaa	atcgactacc	gaatgcaacg	540

(2) INFORMATION FOR SEQ ID NO:936

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1631 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1631

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:936

```

aaggacgaac cagatcacca aaccggaaga tttccgatca ctactggcgt atcggatgcc      60
tatttctatc gaaagccttt ctgaagacta tcgggagcga acgaatcgat agcctccctc      120
attcgcacct caggcagagg ataagctccg ggccactgta tcttagcagc tacctccacg      180
gtttttctct gaaaggatgg agtggagtta ttttattatt ctgcgtttta tcatcccttt      240
tgtgtctttt gccacagata ctaaagagtt atagattaga aataaaaaga cttagcttaa      300
cgttgtaagt aagactatcg atctgggaga tggtcgttcc atcagatcga aaccggtaaa      360
ttggccaagc aggccgatgg cgccgtgaca gtaccatggg caatacggta ttgctcgcta      420
cagtttgtgc agccaaagac gtaaccccgg ctgcgacttc atgcctcttc aggtggaata      480
caaagagaaa actccgccat cggacgcttc cccggaggat tcaactcgcc cgaaggcaag      540
cttcggatta cgagatcctg acctgccgcc ttgtggatcg tgcccttctc cgctattccc      600
ggacaattat catgcagagg tattcgtcaa tgtgatctct tttcagccga tggcgaggat      660
atgcccgaac ccttggccgg tctggcgctt cggcggtctt tgccgtttcc gatataccgt      720
tcaacggccc tatcacaag agtcgaacg cgcagacatc gacttgatgg tcggagccac      780
tacttcgagc agctcgaacg cgcagacatc gacttgatgg tcggagccac aatgacaaca      840
tcattgatgg cgaagggtgaa atggacgagg tacaggaatc cgaatgctcg aaggcatacg      900
cgtggcacac gaagccatca aggtacagtg caggcgcagc tcgaactatc cgaagctgta      960
ggaaaacttc aaaagcgtga tacagccatg aagtaaacga tgaagacctg cgcaagaaaag      1020
tgcacgacga tgctatgctc gtgcctatga ggtggctacc agcggaaacc gcaaacacag      1080
cgcggcgaag cttttgaaaa gatcgtggaa gaggttcaaa ctcaataacg gaagaagaac      1140
ttgccgagaa ggccgaaatg atagctcgct actaccgatg gtggaaaaag aagcgaatgcg      1200
tcgtgccatc ctcgacgaag gcaaagcctc gatgggcgta agaccacgga gatccgtccg      1260
atatggatcg agacgactgc ctaccgggcc cgcattggctc agctatattc actcgtgggtg      1320
agagcagtcg cttacgaccg ttacgcttgg tacgaagagc gacgaaaagc tctggacgat      1380
gtactcaatt atacgaaaag cgcattcctg ctgcactaca attccctcct ttctctacag      1440
tggaagcccg tccccaacgc ggtgtaggcc ccgcgagatc ggtcatggca atttggcgca      1500
tcgcgccctc aagcgtatgt accgacggac taccctatg ttgtacgtgt aatcagcgac      1560
attctggatc caatgggctc gtccttcgat ggccactggt ctgcgccggt acttttgctc      1620
tgcgccgatg c

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(2) INFORMATION FOR SEQ ID NO:937

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1191 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1191

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:937

tcatgtccaa	ttcagaaaaa	aagtgtcggc	ttcggaaaag	tcgggcaatc	acggcgtgtc	60
agatagattt	tgtccgtgta	ggncagcatc	tgctcataac	ttgtgctccg	ccgatgacaa	120
aggcntctgc	ctctttcgcc	caccagccca	atgccacttc	gggcgaagct	tgccccattc	180
gggctccccg	aaaatctgct	gcatcctgct	taggacgata	ttgcgtctgt	tcggcaaagc	240
accttgggca	gggagcggaa	tgtgcggcta	cccatgataa	tgctatgccc	tgtgtcattt	300
ccttgaatcg	tttgagatcg	gccggcagat	gccagaggag	gtctttttgt	atccgatagc	360
cccattctcg	gctatggcaa	caacgattga	aacatattgg	ataggtgagg	aaaaactgaa	420
tatcggtgga	aaacattccg	tagactgcta	caacgcccgc	aatgtgcgga	tcgggatcat	480
acccttcgag	cggaagtctt	cgtatcggaa	gtcgaagaga	tcggacacct	ccggattcat	540
accattcggg	gcaacgctct	cggctcacga	ctcagttgta	gctgtaccgt	tcgaggtggt	600
taagatagat	atgggcgctc	cccagtgat	gtacgaacgc	ccgggtttca	gccctgtgac	660
atgagcgatc	atgtgtagca	ggagtgtat	gaagctatgt	tgaacggtat	gcccagaaaa	720
gaatcggcac	tgccgcgatg	agttgcaggc	tcagccggcc	gtcagcgaca	tagaactgca	780
tgaacagtgg	catggaggca	gatgcatatc	ggcaagctgg	cctacattcc	acggcatacg	840
ataatgcgcc	ggctgtccgg	ttcttcgcgc	agctggcgca	gccctcctgc	atgttggtcta	900
tatgccctcc	ccgatagtcc	ggccaactgc	gcactggtag	ccatatatag	gtcccaaatac	960
gccgttctca	tcagcccatt	gttccaaatg	cgtacgccat	gttcctgcag	gtaatgcacg	1020
ttcgtgtcac	tctgaggaa	caaagcagtt	cgtatataat	ggacttcaag	tgcaatcggt	1080
ggtcgtaagc	aagggaatac	cctcttcaag	gtcaaagcac	atctgatgcc	gaatacgtg	1140
atcgtaccgc	taccgcgtgc	gtcttctttt	cgtactcctc	gtcgaggatg	c	1191

(2) INFORMATION FOR SEQ ID NO:938

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 445 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...445
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:938 ;

tatcggacat	cctcaatatc	acggccatgg	ccgtactgga	cagccacgct	gtctgatttg	60
attcagggtat	aaatccgtac	aacaaataga	ggctgtttac	tgacagaaacg	agcctctatt	120
tttcccttgc	agctataaga	aagcctacgg	aagatgctaa	ggctaaaaag	caaagaggct	180
gctccgcacg	atttgcgagc	agcctctttg	tatttgggggt	ttctatcttt	cggaaaagtt	240
cccgaagtc	gccttttatt	gtccttaaat	ccgatggact	gactttactc	ggtagacatt	300
ctgcccgcctt	gagtcgcgcg	gcggttctgc	cggcttccaa	gagggcaggt	tggtctccgt	360
cggaaatgtag	atcacggtct	tgtcattcag	gcgccttgct	tgacgccacc	catagatact	420
gaatgtattg	tgggcgtaaa	gcttg				445

(2) INFORMATION FOR SEQ ID NO:939

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 537 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...537

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:939

gctcaagatg	cttgccatga	gcggtgagga	cggaggaatc	aagagtctgt	caatctcaac	60
atcgtagcgc	tctctttgag	ctatgagtat	gacccctgga	ttacctgaaa	gcgcgcgaga	120
tgctcagcaa	gcagcgcgac	ccgttattaa	gaaacccgtc	ggggaggatc	tgctgaatat	180
gcagacaggt	attttcgcta	caaaggacgt	gttcactttg	ccataggtac	accctaaga	240
gaattgccga	gagcatcccc	gcagatgcgc	cgcctgccc	gcagttcaca	gaggaggcaa	300
actgatcgat	gcagaaatcc	atcgtcgcta	ccgtctctat	ccggcaatta	tgtagcatgg	360
gatcttctgg	acggatgcga	ccacgccggt	tccattatag	caaggaggaa	aaagagacct	420
ttgtaaaacta	tctgtccgca	caatcggcaa	agtggagatg	caggataagg	atgaagagga	480
attgaaacga	tggattctga	tcatgtatgc	caatccggca	aaggccatat	tatgctg	537

(2) INFORMATION FOR SEQ ID NO:940

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 492 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:940

ggaaggggta	ttgtgtaacg	gtctaataa	aacgaaaaga	ttattgccgg	agagttgtgc	60
aacggaaaag	ccatgaatcc	gatagtcggg	attcatgggt	ttccgttaga	gtgagggaga	120
ttgttgtag	cttagcaatt	cctttacatc	gtactgatga	ggctgccatc	tgctttgcct	180
gccaattctt	tggtgggtact	cccattactt	tgcccatcat	tttactgtca	gtgacgccga	240
gacgggtgatt	atttcctgta	agatgggggt	cagttcctca	cgtgagagtt	gtttggtagg	300
taggcctcga	ttacctcggc	ttcggcaaag	ctcagggttcg	gccgttcggg	tctgccgttt	360
tctacaaaga	tggcagcact	ctcgcggcgc	tgttcaccat	cttttgcatg	atcttgaggg	420
ctgcattctt	ngacagagtg	catcgctgcc	tttagctgtc	ttggcttcga	gaaattcttt	480
cttcactccg	ga					492

(2) INFORMATION FOR SEQ ID NO:941

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2202 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2202

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:941

tgcgaaagga	agatcgagac	aatctttctg	catgaacgta	atccgattgc	caaattctcc	60
gaacgtgctt	tctgtcccc	tatcctcatc	atttccaaga	aagatcgaca	cccgtcacct	120
gcttgactga	agggatatgc	ctgcatattc	gatggctaaa	tcacccgttc	cggtagccac	180
atccagcact	gtatgtgagc	gaaaggctcg	atcatacggg	tagccttctg	ccgccataca	240
cgatcattcc	ccatgaaaag	agggtgattga	gacgatcgta	atgtccggcg	atatattgaa	300
catggcctct	acctgttcat	tcttggggca	ttcgggtgta	taggggttat	tctttcagga	360
ctttgcatgg	cacatgattg	ttcgacagtc	agcgactgct	aacgcagata	ctccgttatg	420
ttcttttcta	ttcttttctg	cgattgctca	ggtctgcctt	ttcgaagggc	ttacctacca	480
ctcgctcgta	aattctatgt	accgctccga	cacactgtcg	cagtatgctt	ccgtcatttc	540
ggatatttgc	ggccgggctt	gccctggaaa	ccgttctcga	tcagccacga	cgaacaaact	600
ccttgataaa	ctgcttctgg	gcttcgcccc	gttcgaacgc	tcctgatagc	cctcggcata	660
gaagtagcga	gaagagtcgg	gcgtattatc	tcgtcgatca	ggtagatctt	accgtccttc	720
ttgccgaatt	cgtatttgga	tccacccaaa	taagcccctt	ttcagcagcc	atttgagtac	780
cgcgtcgaaa	agtgcgtaag	tatagcggtc	tatctgctcg	tagtcctctt	tcgcaccagt	840
ccctgagcaa	tgatttcctg	acgagagata	ttctcatcgt	gacctcatcg	gccttggtcg	900
taggggtgat	aatgggatgt	tcgaaacgct	gttttcgcgc	atgccctcgg	gaagaggcag	960
accgcaaagc	actcgctcgc	ggcagcatag	gcacgccatg	cacttcctgt	gatgtagccg	1020
cggatgacct	ctcgaccttg	aacggttcgc	aacgggtgcc	gatagtaacc	atcgggtcgg	1080
cgtagctatc	ttccagttcg	gaactatatc	gcgagtggca	tcgaggtgtg	tgccgctatc	1140
tgattgagta	cctgaccctt	gtaagggata	ccggccgaag	gactacgtcg	aaagccgata	1200
tgcgatccgt	ggctatcatg	accagagatc	attctccaac	gtgtatacgt	cgcgcacctt	1260
gccgtgatat	acggtttctg	tcccggcagt	ctgaagtcgg	tacgagctaa	tgtttctttc	1320
atctgaattg	tatgctaagt	gattcgtaat	aatatcgata	tcgcctgatt	cttatggttt	1380

gcgcaacgac	agctgcggct	tcggcctcct	ttttccgttc	gcatcgtagc	ggtcgtaggc	1440
atccaccaca	cgctgtacga	gcggatggcg	actatatcag	cgcgttggaa	tgcaatatag	1500
cctatccctc	tcgttccttg	aggatattca	gagcctgacg	cagaccggag	tgcaacacct	1560
tgggaagacg	gtctgcgtaa	tgctgccggg	gacgatcatc	ttggcattgg	caccaagcgg	1620
gtcaggaaca	ttttcatctg	caactcggtc	gtattctgag	cttcgtcaga	atgaccacgg	1680
catcgttgag	cgtacgtcct	ctcatatagg	ccaatgtgct	atctggatga	tggtgttttc	1740
gatgtactct	tttagcttca	cggcggggatc	atctcctcca	gcgcatacata	cagaggctgc	1800
aagtagggat	cgacttatct	ttcatctcac	cgggcagaaa	tcccagcttc	tcgccggctt	1860
cccggcagga	cgtgagagaa	tgatacggcg	cacctgcttg	cttttcaagg	ccggacagcc	1920
agactgatgg	ctacgaaggt	cttgcccgtt	ccggcagggc	gatggcaaaa	acgagggtcat	1980
tggcctcgaa	agcctccaca	agtttctgcg	attatcacct	ctggcaatga	tgctcttgcc	2040
tcccgttcca	tgcatgatag	atgtttaggg	acatcgtcag	cgggcagctt	ggcaccttgt	2100
gcaatgccag	gatcacatct	tcgggcagga	ggttgtactc	acggcaatac	gccacctcgg	2160
ctccgaact	tccaggaaac	gatccgtctc	gcgcgaatcg	cc		2202

(2) INFORMATION FOR SEQ ID NO:942

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 784 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:942

gcaaaccgat	aatagaaata	gatatgcgag	catattacga	actgaagcgc	gtcgagacgc	60
atgcgataag	gaagcagaac	gataccagaa	ggacatcttc	gctgtttgga	tcatgtacgc	120
aacaattatg	gcgacatgat	tttcgaaaag	ttgagaccca	tctgatctat	cctggcagcc	180
ttggcaataa	gatactcgct	tcctcatcgg	caagaagcag	atctcttcat	ccaagctaat	240
gactcgacag	gccggccgac	tctccatctg	atcgagcagc	ttaccgactt	cggcgtcctt	300
tgctgatcag	tgcccttgctt	ggctttgtta	agcgtagcat	cgtcgccgtt	tccgcaggcg	360
tcgataatth	cccctattct	gtcttttcgg	gtaggaacat	tttatgtcag	cggctgacaa	420
agcgatataa	ttgttgctctg	ctgaaacaat	tctccatgaa	cacaaaagaa	tatgtgctgg	480
actttatcaa	cgcacgaact	gtaacctttt	ccctaccggc	aatgcgggca	caggcaaaaag	540
accctgctgc	gccatatagt	ccaacacaca	ttcaaaaact	gcatagtacc	gtcctccaccg	600
gaatagcagc	gttgaangcc	ggtgggggtga	cgntgcacgc	cttttacagc	ttccgccggg	660
aacatttcatt	ccgtacgggc	tatctccgaa	agtgaacgcg	gcgtaaactt	ccctacgccca	720
acttcttttt	ggaaaagaca	cgtatgcacg	cttcgaagcg	caaattgctt	cgaaacatgg	780
agnt						784

(2) INFORMATION FOR SEQ ID NO:943

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1029 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular